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H. HOWSON'S ARGUMENT

IN THE MATTER OF THE PETITION TO THE SENATE AND HOUSE
OF REPRESENTATIVES OF THE UNITED STATES,

FOR THE

Abolition or Modification of the Patent Office

MODEL SYSTEM.

BRIEF

IN THE MATTER OF THE PETITION TO THE SENATE AND HOUSE
OF REPRESENTATIVES OF THE UNITED STATES,

FOR THE

ABOLITION OR MODIFICATION OF THE PATENT OFFICE
MODEL SYSTEM.

STATEMENT OF THE PETITIONERS.

First.—That it has hitherto been the practice of the Commissioner of Patents, under the law, to demand a model with every application for a Patent in which the character of the invention admits of one ;

Second.—That the making of these models is a serious tax on inventors, involves the premature exposure of inventions, and needless delay in making up applications for Patents, and detracts from the revenue of the Patent Office, because the demand for models frequently deters inventors from making applications ;

Third.—That models are not as a rule necessary for attorneys in preparing applications for Patents, or for Examiners of the Patent Office in the performance of their duties ;

Fourth.—That with rare exceptions complete well-executed drawings afford more ready means of determining the character of an invention, and should be, in any case admitting of them, sufficient for the interpretation of the specifications forming part of the Patent ;

Fifth.—That owing to the furnishing of models, there is a tendency in the Patent Office to admit drawings which are wanting in fullness and perspicuity, and which would not be admitted in the absence of models, an evil resulting in the delivery of Patents which cannot be easily understood without the aid of models ;

Sixth.—That the models deposited in the Patent Office occupy a large amount of space which could be devoted to much more useful purposes ;

Seventh.—That the increase of models must eventually involve the necessity of either disposing of many of them to make room for the rest, or of finding room for the rapidly growing collection in places outside of the Patent Office ;

Eighth.—That the models deposited in the Patent Office are rarely working models, but generally fragmentary, and in many cases distorted representations of the machines they are intended to represent, and are consequently unfit for an industrial museum ;

Ninth.—That an industrial museum worthy of the name can be best established by permitting patentees and manufacturers to deposit at their option and at their own cost properly proportioned and working models of patented machines which have proved to be successful in practice ;

Tenth.—That ample provision should be afforded to inventors and the public for the examination of drawings of patented inventions.

H. HOWSON'S ARGUMENT FOR THE PETITIONERS.

Gentlemen of the Committee on Patents.

The petition to which the following pages refer may not appear very formidable, as regards the number of signatures attached to it, but it is to be said that there has been none of the usual canvassing, no carrying of the petition from place to place to secure signatures. One set of the sheets was kept in a private office in this City for signature by inventors who called there upon business, and who approved of the petition; and of those who called there, during a period of several weeks, all, without exception, did approve of it. Another set of the sheets was placed in the Franklin Institute of this City, and a few others in the offices of prominent manufacturers.

All the signatures were obtained without effort in a few weeks, and are nearly all of parties residing in Philadelphia or vicinity.

All the signers are either Patentees or interested in Patents, and the Hon. Members of Congress from this City will recognize the names of prominent manufacturers, and gentlemen well known for inventive, mechanical and scientific ability.

It is not thought necessary to send the petition to different parts of the country, for the sentiment of inventors on the subject must be the same in all sections. Judging from the eagerness of inventors here to sign the petition, and from an experience of twenty-five years among them I feel satisfied that I represent nineteen-twentieths of the inventors of the country, in asking for a favorable consideration of this petition.

In discussing the subject to which the petition is directed, I propose to take up the paragraphs on the adjoining page for consideration, in their numerical order.

The following is the first paragraph of the petition:

First:

That it has hitherto been the practice of the Commissioner of Patents, under the law, to demand a model with every application for a patent in which the character of the invention admits of one.

You are doubtless aware, gentlemen, that under the law as it exists, the Commissioner of Patents can, at his discretion,

dispense with models; the only change which it is proposed to make in the law, is to render it declaratory as to when and under what circumstances models may be required.

When my friend Gen. Leggett was Commissioner of Patents, he established a rule dispensing with models, in many cases, but the experiment was a failure, owing, I am convinced, to the want of a positive law which the Commissioner and his subordinates would be compelled to obey. The old system was restored, and to this day has been adhered to as strictly as though the law was imperative in respect to the furnishing of a model, with every application for a patent admitting of illustration by a model.

The following is the amendment of the law as suggested by the Honorable Commissioner of Patents :

“In any case which admits of representation by model, if the drawings filed be deemed insufficient, or there be doubt whether the machine or device forming the subject of the application will operate in the manner set forth in the specification, or if, in an interference or an appeal a model be deemed desirable for more ready illustration, the applicant, if required by the Commissioner, shall furnish a working model of convenient size to exhibit advantageously the several parts of the invention or discovery. Such models may, in the discretion of the Commissioner, be retained in the office, or returned to the applicant. All such models, together with exhibits in interference cases not deemed suitable to be retained in the office, and not removed after due notice, may be sold by the Commissioner, and the proceeds paid into the Treasury as other Patent moneys are directed to be paid.”

I may as well refer here as elsewhere to an anomalous state of affairs which exist under the present system.

An Examiner in acting on an application for a Patent, has before him a specification and drawing, which he interprets by the light of a model; the application is allowed, and the Patent goes out to be interpreted by the public without the aid of the model, the latter constituting no part of the Patent.

You will, I am sure, assent to the proposition that this is a state of affairs, the end of which is demanded by public policy.

Under the proposed change of the law, an Examiner's judgment will be based on precisely the same materials, the specification and drawing, which the public will possess for an interpretation of the Patent, if granted.

When the specification and drawing are placed before an Examiner, and they fail to impart to him a proper understanding of the invention without the aid of a model, it is very certain that they are not in a proper condition to go before the public in the shape of a Patent.

When such insufficient documents are presented, the proposed law authorizes the Commissioner to demand a model. Don't let us misunderstand the object of this model; it is not asked for in order to be stored away and labelled for the purpose of affording in the future an interpretation of a Patent, but merely to enable the Examiner to decide wherein the defects in the drawing consist, and to demand such alterations or additions to the drawing as the model may suggest; after the desired alterations have been made, the model may be returned to the applicant; or if it is a good model, worthy of preservation, it may be retained in the Office, not as appertaining to the Patent, but as an industrial exhibit for the proposed Museum to which I shall have to refer hereafter.

There is a second object in the demand for a model under the circumstances related: it is the duty of an applicant for a Patent, a duty which he owes to the public, to set forth his invention in such clear and exact terms that any one skilled in the art to which the invention relates, can readily understand it; if he fails in this, he is met with the demand for a model which may be looked upon as a sort of penalty for carelessness.

There is a third and very important object in this demand for a model: it will compel solicitors of patents to properly perform their duties to their clients by presenting carefully prepared papers.

We all know that the country is flooded with Patents to which imperfect and insufficient drawings are attached; Patents which have been forced through the office by the aid of models.

If the suggestions before you are adopted and become a part of the Patent Law, we shall have a better class of Patents, both the public and inventors will be benefited, and I may safely add that we shall have a better class of patent practitioners.

Let us now turn to the second clause of the petition, which is as follows :

That the making of these models is a serious tax on inventors, involves the premature exposure of inventions, and needless delay in making up applications for Patents, and detracts from the revenue of the Patent Office, because the demand for models frequently deters inventors from making applications.

I am not going to appeal to your sympathy by the old cry of "poor inventor;" far too much of this sort of thing has been done by men who assume a species of patronizing custody of the interests of inventors; on the other hand there has been too much talk by men who ought to know better about the government pampering of inventors with special indulgences and privileges.

Inventors, and I am speaking of true inventors, not imitators and pirates, have been the founders of nineteen-twentieths of our great industries, and must command the admiration and respect of all right thinking men. They are not beggars for government patronage, they are as hard working, manly, and independent as other good citizens, ready to comply with the demand for reasonable taxes, but restive under the infliction of a tax from which no advantages result, either for the public or themselves.

The yearly tax on inventors, for models, cannot amount to less than \$250,000; it is a great hardship to many, involves not only expense, but the consumption of valuable time, and inventors are naturally uneasy under the infliction, because the tax is useless.

One of the objections to models, cited in this second paragraph of the petition, is the needless exposure of inventions which the making of models causes. This premature exposure has always been a source of trouble, and the origin of much of the litigation in the Patent Office.

It is also stated in the second paragraph that the demand for models detracts from the revenues of the Patent Office, because it deters inventors from making applications.

I know from experience that this is the case, that the trouble and expense of getting models made frequently so disgusts inventors that they turn their attention to other matters.

The loss of revenue to the office due to such incidents is a trifling consideration, however, compared with the probable loss to the public of valuable inventions thus smothered in their infancy.

Third clause of the petition :

That models are not, as a rule, necessary for attorneys in preparing applications for Patents, or for Examiners of the Patent Office in the performance of their duties.

There is a difference of opinion among Patent Solicitors on this subject, which has been discussed to some extent in the public prints.

It would appear that with a few exceptions the ~~majority of~~ Washington solicitors are in favor of the continuance of the model system ; on the other hand several of the solicitors in Philadelphia have signed the petition. Judging from the information I have derived on the subject from different sources, I should say that of all the solicitors throughout the country one-third of them are in favor of the petition, one-third are indifferent or are in doubt on the subject, and the other third are opposed to any change in the system.

One Patent Solicitor has publicly declared that if models are abolished, all Patent Solicitors will have to raise their prices.

Another man said, " do away with models, and I will reduce my charges, for I shall not have the bother of instructing model makers, and shall not lose time in waiting for models."

Again, the first man said, " If you do away with models, we shall have to make well-studied drawings."

I want especially to direct your attention to this candid admission, for it is the very point on which the main evil of the model system centres.

Every Patent should be clear, distinct, and self-explanatory,

and the drawing, if there be one, should be a full and unmistakable display of the invention ; if the drawing is defective, the Patent is defective, and yet we find a Solicitor of Patents publicly objecting to the abolition of models, because they permit the use of cheap and inferior drawings. He says, if the drawing is insufficient the model will supply the deficiency—the model, which is no part of the Patent, and which may be hundreds of miles away from the home of the Patentee or of some member of the public who wishes to acquire a proper knowledge of the Patent.

If this published assertion of a Solicitor means anything, it means this : “I don’t want to incur the trouble and expense of doing my work carefully ; I want to have the model system continued, because it enables me to get out Patents with inferior drawings.”

You will say, gentlemen, that if the model system fosters this sort of thing, it is a pernicious system, and the sooner it is swept away the better.

Again, it has been stated that Solicitors cannot make proper drawings from such rough sketches and descriptions as inventors can make. Don’t believe it !

With the exception of Canada, ours is the only Patent granting country in the world which demands models from applicants for Patents ; in England, in France, in every country of Continental Europe, men are constantly engaged in making specifications and drawings, sometimes from rough sketches, sometimes from the most meagre memoranda. The same thing is done every day in every city in our own country, for there is quite as much of this kind of talent here as in Europe, and much more will be speedily developed if the model system is abandoned.

But unfortunately, this system has bred a class of practitioners who cannot understand inventions without models, and they fancy that every one is as ignorant as they are.

It is the duty of a solicitor to put in proper form the ideas of an inventor as displayed by rough sketches and descriptions, just as a lawyer will prepare a complete deed from the few hasty memorandums of his client.

But in the absence of models, sketches and memoranda will not be the only guides by which applications for Patents will be prepared; in many cases there will be either full sized machines or working drawings from which to prepare the illustrations to be attached to Patents, just as they are prepared now from the same sources in hundreds of cases by competent solicitors.

Another reason publicly advanced for the continuance of the model system, is that inventors, the majority of whom are mechanics, cannot easily understand drawings.

There never was a more unfounded charge. Of all men, mechanics are the most apt at acquiring a ready knowledge of inventions from drawings, necessarily so, for their calling compels them in many cases to work from drawings. There are many Patent Solicitors and so-called Patent Lawyers who would be much better qualified for their positions if they could read mechanical drawings as well as intelligent mechanics.

The Scientific American, a periodical, which has advocated the abandonment of the model system, and every number of which contains from 8 to 12 mechanical engravings of the best class, has forty thousand subscribers, who, with few exceptions, are mechanics and inventors. Do these men purchase that paper from idle curiosity? No; they read the text, and examine the engravings and understand them too, and let me say here that this paper, and others of like character have played important parts in educating the public to an understanding of mechanical drawings.

The reasons advanced by Patent Solicitors, who advocate a continuance of the model system, when carefully sifted, amount to this, that in the absence of models they, the solicitors, will be put to considerable inconvenience.

Among the opponents of the proposed change are gentlemen of good standing and repute; to these I would say, you exaggerate the supposed difficulties which you think you would have to contend against; you would soon accommodate yourselves to the change.

No competent Patent Solicitor need be alarmed at the proposed change. Models will be made as heretofore by men whose

process of inventing is by building up, pulling down, and rebuilding, a process allied to that of the pattern designer, who shakes a kaleidoscope until he gets a pattern to suit him. Patent Solicitors will have the benefit of these models in preparing applications.

Then there are the inventors who build full sized working machines, in many cases, before they think of applying for a Patent. If the machines or devices be small, they can be sent to the solicitor for his temporary use, if they are too large, the solicitor can send a competent draughtsman to sketch the machine, or he may be furnished with working drawings from which to make the Patent illustrations.

Then there is another class of inventors, the most far-seeing and skillfull of all, who scout the idea of a model, rely entirely on drawings, which are to them quite as satisfactory proofs of the practical value of an invention as any model or even the full sized machine can be. These men frequently submit rough sketches to their attorneys who are expected to make from them appropriate illustrations.

Of course the incompetent men who cannot understand an invention without a model, who can neither make a drawing themselves nor properly instruct draughtsmen how to make it in the absence of a model, oppose a change which would restrict their practice, or will compel them to adopt some other calling.

This alone would afford an excellent reason for abandoning the model system in the interests of inventors and the public, as well as for the comfort of the Examiners of the Patent Office, for these gentlemen will tell you that nothing interferes so much with the proper performance of their duties, as the actions of incompetent men who have entered the profession of soliciting patents without proper training or qualification.

Before I leave this branch of the subject I am particularly anxious to direct your attention to an assertion by a Washington Solicitor, to the effect that it would be necessary to attach working drawings to Patents, if models are dispensed with.

I was much surprised to find that my friend, Gen. Leggett,

made substantially the same assertion before your Honorable Committee on the 17th of November.

After a long acquaintance with Gen. Leggett, who was one of the best Commissioners we ever had, this is the first time we have had to differ in opinion relating to Patent matters and Patent Office practice.

A Patent should be full, clear, and exact, and the drawing should be of a character which can be most readily understood; this should always be exacted from the applicant for a Patent in the interest of the public.

I think, gentlemen, you will agree with me, that if a working drawing will be required to illustrate an invention in the absence of a model, the demand should be complied with when there is a model, but I can show you that what are known as working drawings are the very worst documents to attach to Patents.

In order that you may be the more readily convinced of this, I have had a portion of a working drawing of a locomotive reproduced by photo-lithography, the size being reduced for convenient attachment to this brief, at the end of which it will be found.

A locomotive is a familiar machine, and not of the most complex character, and yet this drawing is as confusing as one of Madame Demorest's pattern plates.

Trained engineers can understand the drawing readily enough, but it is not the sort of drawing to be attached to a public document like a Patent.

A Patent should be simply a lesson, by which any member of the community familiar with the art to which it relates may acquire a positive knowledge of the thing patented with the least possible trouble.

Our scientific papers know how to make the public familiar with new inventions.

Take the illustrations, numbered from 1 to 6, which are printed on tinted paper, and which I have attached to this brief; they are from popular periodicals, the impressions being somewhat imperfect, as the stereotype-plates from which they were printed were slightly damaged.

Any man familiar with machinery of the class to which these engravings relate, will understand them at a glance without looking at the text which always accompanies the plates; and *with* the text, any man of ordinary intelligence, who is at all familiar with mechanical matters, can soon comprehend the inventions.

Inventors want, and the public wants solicitors of Patents who will exercise the same amount of care and consideration in the preparation of Patent drawings as the proprietors of these papers do in displaying new inventions by well executed engravings of judiciously selected views.

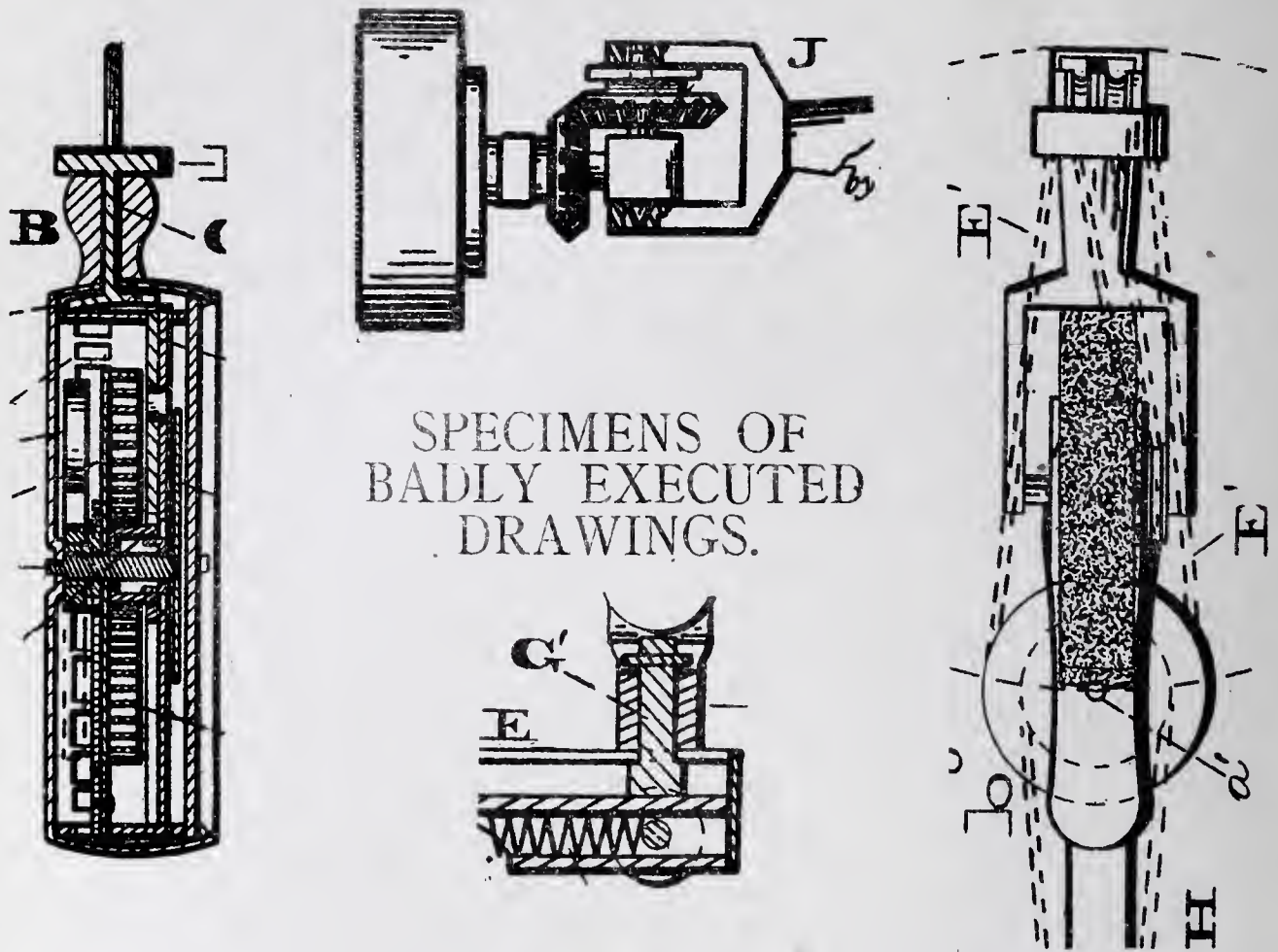
But solicitors may say "these kind of drawings are very costly; we should have to charge our clients high prices for them; moreover, they could not be reproduced by photo-lithography." All this is very true; but I have not instanced these as the best kind of drawings to be attached to Patents, but as instances of the display of proper judgment in the selection of views to appeal to the understanding. The shading of these engravings is too heavy for Patent drawings, as it leaves but little room for letters of reference. Patent drawings should be made with clear, strong lines, and with as little shading as possible, so that they can be reproduced by the economical process of photo-lithography.

The necessity of making better drawings in the absence of models, and the cost attending the making of these drawings, appears to be the main difficulty with those who oppose the proposed amendment of the law; they also allege that good draughtsmen are scarce.

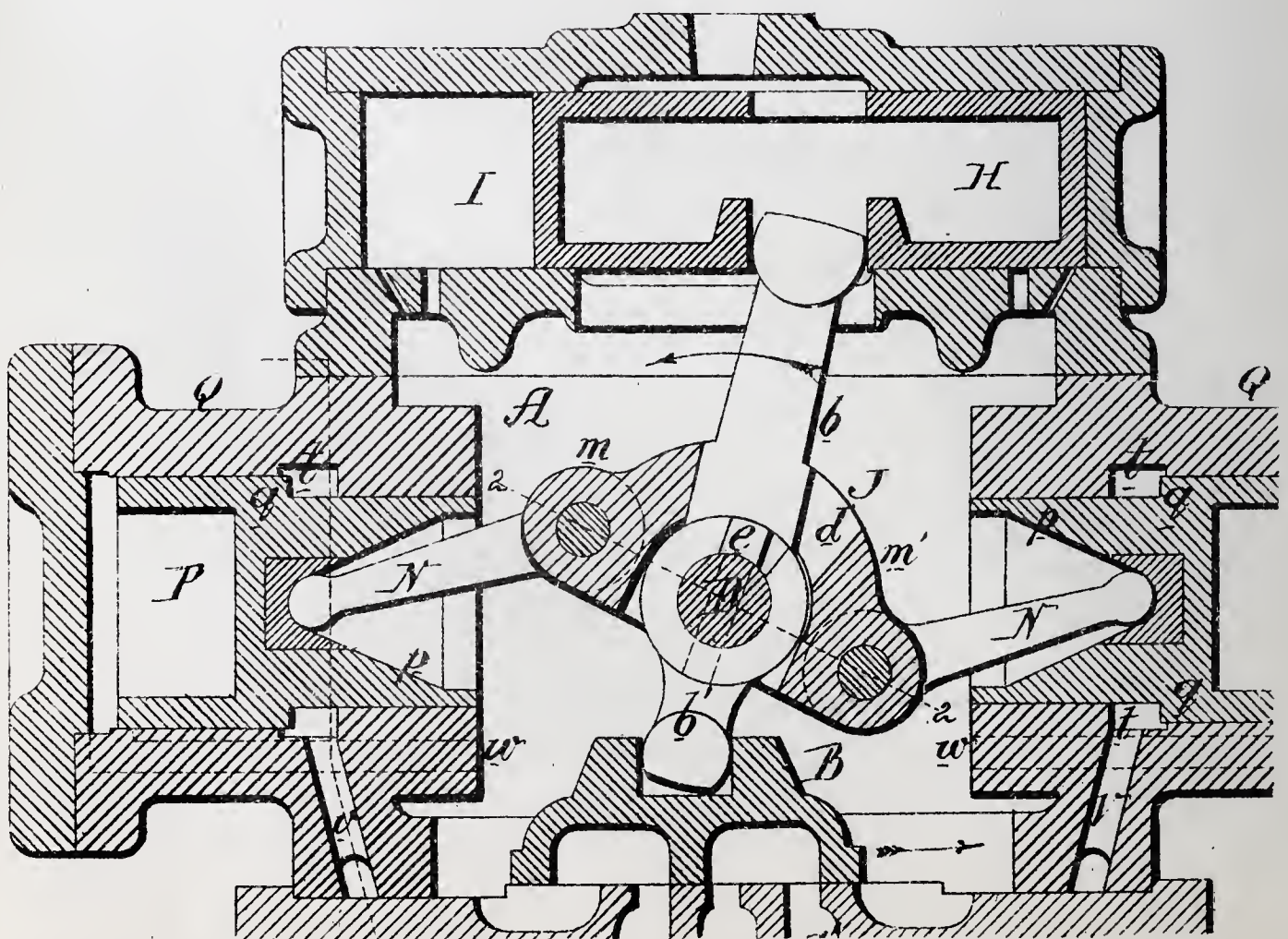
My own experience is that inventors do not object to pay a reasonable price for good drawings; they would be all the less likely to object when they are relieved from the tax attending the making of models.

But good drawings are not so costly as these gentlemen would have you to believe.

At the end of this pamphlet will be found eight reproductions of as many original Patent drawings, which are reduced to one-fourth of the original size, and therefore are not quite as



SPECIMEN OF PROPERLY EXECUTED DRAWING.



clear as the originals. These drawings can be readily understood, because the best kind of views have been selected.

I don't pretend to say that these drawings are very superior specimens; they are simply fair drawings, with exception perhaps of portions of plate 2, and they have been selected because the originals were made by boys, not one of whom was over eighteen years of age; of the eight drawings, two of the best were made by a boy of sixteen. All the drawings were not made directly from models, two of them were made from sketches of the full-sized machines.

Here let me note my objection to the remark of Gen. Leggett, that the matter of reading a drawing is an art. There is no more art in reading a mechanical drawing, than there is in making one; both are simply matters of experience. Landscape painting and free hand drawing are arts, but there is no more art in mechanical drawing than in planing a board.

Mechanical drawing is an operation accomplished by the manipulation of tools in obedience to arbitrary rules; it is within easy reach of any boy of ordinary intelligence; is surrounded by no mysteries. One boy may have more aptitude for it than another, but there is not a school-boy of fifteen, endowed with the average intellect, who cannot learn the principals of mechanical drawing in from three to six months, and acquire a proficiency in execution in a few months more.

If solicitors are anxious to present good drawings, they will find no lack of assistance at reasonably cheap rates, but many of them are far too anxious to get the cheapest drawing in the shortest time.

I doubt, gentlemen, whether you are aware of the kind of drawings which are sometimes attached to Patents, I will, therefore, refer you to the annexed illustration, which consists of a photo-lithographic reproduction of slips cut at random from drawings attached to Patents. On the upper portion of the sheet are three badly executed views, or rather fragments of views, for I had no desire to hurt the feelings of the patentee, or of the attorney from whose office the drawings emanated, by reproducing them in their entire condition. The lower portion of the sheet contains a fairly executed fragment of a drawing.

Instances of wretched drawings executed in the abominable

style indicated by the upper views are too common. If you abolish the model system, no such drawings can be passed through the Patent Office.

My friend, General Leggett, says that the Patent Office could ~~not~~ get along without models much better than the Courts; that Examiners are experts in reading drawings.

Of course models are necessary both for the Judges and counsel, in conducting Patent suits before the Courts in mechanical cases, but for purpose of illustration and argument models made from the Patent, or from machines constructed under the Patent, may, in most cases, be used without question upon either side. For certified duplicates of Patent Office models there is comparatively little occasion, and that little probably due for the most part to obscurity of drawings and specifications, and consequent opportunity for differing constructions of the descriptive matter.

This kind of obscurity and opportunity for disputation would be less likely to occur if there were no models upon which applicants and attorneys might depend to make good the defects of carelessly or unskillfully prepared drawings.

If the Patent Office does not require models, if inventors do not want to make them, and if solicitors should be able to do without them, it seems a great hardship to tax inventors at the rate of \$250,000 per year for the accommodation of a few litigants.

The petitioners declare that "models are not as a rule necessary for Examiners in the Patent Office in the performance of their duties."

It is evident from the report of the Hon. Commissioner of Patents, which is now before you, that his views coincide with those of the petitioners in relation to this matter.

The Hon. Ellis Spear is an exceptional Commissioner; he is the only commissioner, with one exception, who may be said to have risen from the ranks; he was originally a clerk in the Patent Office, then a Third Assistant Examiner, a Second and First Assistant, a Principal Examiner, an Examiner in Chief, an Assistant Commissioner, and finally Commissioner; a gradual

promotion due to merit, hence his opinion relating to Patent Office matters must necessarily command more than ordinary respect.

Then we have the opinion of Gen. Leggett, that the Patent Office could get along without models better than the Courts, because Examiners of the Patent Office are experts in the reading of drawings. But there is better evidence than all this, that as a rule models are not necessary for Examiners.

An Examiner, in perusing a new application, and comparing the invention therein described with prior inventions, rarely visits the model room for the purpose of making the comparison; he relies on the drawings of prior Patents, unless the drawings are so imperfect that he must refer to the model. If he can understand these prior inventions, by the aid of drawings alone, he ought to understand new inventions without a model.

One-half of the models in the Patent Office have recently been destroyed, and yet we find the Examiners at work performing their intricate duties as faithfully, and with as much expedition as usual.

One of the duties which Examiners, Patent Solicitors, and Patent Lawyers have most frequently to perform, is to investigate the histories of different classes of inventions, and for this, they must rely on books alone. They have no models to help them, and yet this duty is efficiently performed.

If the Examiners themselves are questioned on the subject, I think they will say that if better drawings were presented by solicitors there would be very little use for models.

There are exceptional cases in which models may be required, and ample provision has been made for this in the amendment proposed by the Honorable Commissioner.

Fourth:

That with rare exceptions complete well-executed drawings afford more ready means of determining the character of an invention, and should be in any case admitting of them, sufficient for the interpretation of the specifications forming part of the Patent.

We live, gentlemen, in the pictorial age. In 1842 the "Illustrated London News" began to popularize wood en-

graving, which had been neglected for the more costly copper plate and steel engraving, and lithography, all demanding tedious processes of Printing. In 1845 the "Scientific American" was established, the wood engravings being at first inferior, but gradually improving in quality, until to-day every number of that paper exhibits the finest specimens of mechanical wood engraving that can be found in any part of the world. In 1856 the "London Engineer," the most popular work of its kind in England, was established, all its illustrations being made by wood engravings, which from that time have been the universal adjuncts to modern literature, and have, with photography, played an important part in educating the people to a clear understanding of objects from drawings, for wood engravings can be printed simultaneously with, and in juxtaposition to the text.

There has been such a profusion of illustrated literature during the last twenty years, that the youth of to-day knows more about the actual shape and condition of hosts of objects, than the grown man of thirty years ago; and one of the consequences of this is, that our boys can acquire a knowledge of mechanical drawing with a facility not dreamed of in our younger days.

I mention all this to show that the public has acquired such a familiarity with objects from illustrations, and such capacity for reading drawings, that models are no longer necessary for imparting information concerning new inventions, excepting in very rare cases.

For men who have a mechanical training, drawings are superior to models as a means of gaining a rapid and accurate insight into the character of machinery and devices.

One of the reasons advanced for the continuance of the model system is, that inventors and attorneys are in the habit of examining models, and should not be deprived of this mode of acquiring a knowledge of patented inventions.

The only reason why inventors and attorneys examine the models in preference to the drawings, is because the former have been arranged in classes, and because the original drawings of

the Patent Office are not so accessible to the public, as the models.

When duplicate drawings, bound in classes, are within easy reach, and it is the intention of the Hon. Commissioner, I believe, to carry this plan into effect, the model cases will be deserted.

If an attorney examines a model he can rarely acquire a proper insight into the invention to which it relates without referring to the drawing and specification for an interpretation of the model, for it must be borne in mind that nearly two-thirds of the models are so defective, and have such a tendency to mislead, that resort must be had to the drawings and description for a proper understanding of the invention they are intended to represent.

On this subject of the abominable character of more than half the models of the Patent Office I shall have to make especial mention under another heading.

Look at the first plate of the series of engravings printed on tinted paper. It is a drawing of a vertical steam boiler, showing the internal arrangements and sundry details. Any one at all familiar with boilers will understand it at a glance.

No model, not even the full sized boiler itself could impart a knowledge of its structure so quickly as this simple drawing.

On plate 4 there are two views of an axle-box, displaying the interior arrangement much better than a model could, and the same remarks will apply to the three views of a steam boiler on the same plate.

It has been stated in support of the model system, as we have seen above, that if models are to be abandoned, working drawings will be required, and such an increased number of sheets, that the government will be put to great additional expense in reproducing them by photolithography.

I would direct the attention of the gentlemen who labor under this delusion, to plate 5, where, within a space of $10\frac{1}{2}$ inches by 8 inches, is illustrated every part of a breach loading cannon so thoroughly, that any draughtsman could make from the plate accurate working drawings ready for the manufacturer, and the

reason of this is, that different views of the detailed parts are shown in perspective.

We don't want working drawings for the Patent Office ; we don't require larger sheets than are used now ; we don't want more sheets to add to the cost of reproduction ; what we want is the exercise of some brains in the selection of appropriate views, and decent execution.

The drawings to which we have referred exhibit the internal structure of the different objects. Plate 2 is an excellent perspective view, showing the external aspect of a machine with an accuracy that cannot be excelled by the most costly model, and Plates 3 and 6 are external perspective views ; the first, of a breech-loading fire-arm ; and the second, of a portable engine.

If solicitors would display as much tact as these engravings exhibit, in the preparation of Patent Office drawings, the Examiners would require no models.

But the solicitors say perspective drawings are expensive and tedious to make. My reply to this is, first, that they are not so expensive as models, second, that the attachment of well executed and full drawings to Patents is demanded by the interests of the Patentee, the public, and the Patent Office, and third that the specimen sheets made by boys, and hereto annexed, go to show that fair drawings are not so expensive as the advocates of the model system would have us to believe.

Fifth :

That owing to the furnishing of models, there is a tendency in the Patent Office to admit drawings which 'are wanting in fullness and perspicuity, and which would not be admitted in the absence of models, an evil resulting in the delivery of Patents which cannot be easily understood without the aid of models.

The Hon. Commissioner of Patents, in his report of Dec. 11th, says that "the present model system tends to the issue of Patents with imperfect drawings and imperfect descriptions."

"It may easily escape the Examiner's notice, he says, that the knowledge which he has of the invention may have been conveyed, in some respects, solely by the model, and that the drawing may be defective. But in any event the specification and

drawing should disclose to him fully the invention, if they are sufficiently clear and full to disclose it to the public."

It cannot be doubted that an Examiner, with a model before him to throw light on the invention, is apt to unconsciously overlook defects in the drawing, which is allowed to go out in its defective condition in connection with a Patent.

Attorneys know this well enough, and some of them act accordingly; they present incomplete drawings, and say these will do well enough, the model will serve to help out the Examiners in the performance of their duties; they care little about the public, which has virtually no model to help in interpreting the Patent which the Examiner passes by the aid of a model.

The solicitor who has been most active in advocating in the public prints a continuance of the model system, says: "Don't abolish the model system; if you do you will compel us to make well-studied drawings." The petitioners, gentlemen, on the other hand, say abolish the model system, so that these men may be compelled to perform their duties properly, by making better drawings for the convenience of the Patent Office, and in the interests of inventors and the public.

There is another point to be considered in this connection: an attorney, with nothing before him but the sketch or rough drawing, and a crude description prepared by his client, or even with the working machine or a working drawing of a machine before him, is compelled to exercise patience and forethought in discovering the main points of the invention, and the consequence is that more brains will be put into the specification than if he had a model.

The model system has done more to promote carelessness in the preparation of applications for Patents than all other things put together. It has led to a hurried and reckless practice among competent solicitors, and has invited into the profession a class of men who have neither the education, training, nor brains for the proper performance of their duties, and who are a curse alike to the Patent Office, inventors, and the public.

Sixth:

That the models deposited in the Patent Office occupy a large amount of space which could be devoted to much more useful purposes.

Seventh :

That the increase of models must eventually involve the necessity of either disposing of many of them to make room for the rest, or of finding room for the rapidly growing collection, in places outside of the Patent Office.

It will not be necessary, gentlemen, to fatigue you with lengthy remarks on this subject.

Every Commissioner, for twenty years past, has complained of the want of room for his subordinates.

There are twenty-two principal Examiners, each one of whom occupies a single room, with two or three assistants and one or two clerks; papers which ought to be excluded from the public gaze are more or less exposed to any one who chooses to enter, and no proper secrecy can be maintained.

In the halls above the rooms of the Examiners, are acres of space devoted to the exhibition of models; if a portion of these be dispensed with and the model system be discontinued, there would be ample accommodation, not only for Examiners and other officers of the Patent Office, but for the display of well finished working models and specimens of industrial arts, to which I shall have to refer hereafter.

If all the models at present piled up three or four deep in the cases were of any practical value, there might be some excuse for their absorption of so much valuable space, but I shall show in the next chapter that two-thirds of these models are worse than useless.

Eighth :

That the models deposited in the Patent Office are rarely working models, but generally fragmentary, and in many cases distorted representations of the machines they are intended to represent, and are consequently unfit for an industrial museum.

I have always noticed, gentlemen, and I am sure you must have noticed, that when any class of men get into any comfortable and profitable business rut, and wise legislation in the interest of the public proposes to interfere with that rut, these men invariably become intensely patriotic.

Within three or four days after the conflagration which destroyed one-half of the models in the Patent Office, the business of that bureau was conducted with the usual promptness. This

very naturally induced men of a contemplative turn of mind to think, that if the authorities of the Patent Office could get along in their regular business with one-half of the models, they might dispense with the whole, and this was suggested in the public prints.

But a number of Patent practitioners had got into a particular rut with which the abolition of the model system would materially interfere; their clients sent them models, the models were sent round the corner to a draughtsman who contracted to make the drawings at a cheap rate; the more meagre the drawings the less was paid for them; the drawings were returned to the solicitor who prepared the specification; the quicker this was done the more profitable of course it would be; the case was pushed through the Office at railroad speed, and the Patent was issued.

The routine or rut was so easy and comfortable, and with all profitable, that violent competition arose, lower and lower prices were charged, and the vile contingent fee system followed. The interests of inventors were ignored, anything in the shape of a Patent was accepted, a profession, on the proper conduct of which, experience, ability, and good judgment should be brought to bear, was reduced to the level of a claim agency business, and the consequence has been the flooding of the country with a lot of imperfect Patents with wretched claims and bad drawings, and the victimizing both of the inventors and the public.

I should be very sorry to say that there are no good and honest practitioners who object to the abolition of the model system, but I do say that this system has done more to bring about this wretched state of affairs than anything else.

Now, Patent Practitioners have got into a rut, the easy following of which depended upon the continuance of the model system, and when the latter was in danger there was the usual patriotic appeal for a continuance of the rut.

Gentlemen, what do you suppose this patriotic invocation was?

“Don’t disturb or interfere with the continuance of our grand national museum of industry.”

It requires a considerable amount of equanimity to answer this appeal in polite terms.

The Hon. Commissioner of Patents in his report says: "not half of the models are of practical value as illustrations of the arts to which they pertain."

I will go a little further than this, and say that when you take away about one-third of the models there is nothing left but a grand national junk-shop.

You may not be aware, gentlemen, of the kinds of models sometimes deposited in the Patent Office, in connection with applications for a Patent.

Let me refer to one which attracted my attention a few years ago. It was connected with an application for a Patent for a process, in which a boiler, about fifteen feet high and four feet in diameter, a rotary pump, and sundry pipes were demanded.

It was evident that considerable anxiety existed on the part of the applicant or his attorney, to push the case through in a hurry, but the demand for a model interfered with this desire for haste.

The model itself has, fortunately for the credit of the Patent Office, been mislaid or destroyed in the recent fire, but I can describe it from memory.

A piece was cut from a broom stick, and this was to represent the fifteen feet high boiler; a piece of shingle was nailed to the stick to represent the base of the boiler. So far the construction of the model appears to have been easy enough, but to provide for a rotary pump demanded some ingenuity. This difficulty was overcome by a copper cent, through a hole in which, a carpet tack was driven into the broom stick boiler. There was something still wanting, the circulating pipes, which were furnished by common stove wire coiled round the tack and stuck into the top of the broom-stick.

Do not suppose, gentlemen, that all this is an exaggeration. There may not be very many models quite as preposterous as this, but there are thousands of distorted misrepresentations of inventions, dummy models, models so fragile that they have been broken and parts lost, models of steam engines and steamboats which would disgrace a toy shop, thousands of models made

with no more respect for proportions than a Chinese artist has for perspective, and with as little regard to the general fitness of things as the Noah's arks of our childhood, in which all the animals were of nearly the same size.

The most incongruous materials enter into the composition of these so-called models; bits of segar boxes glued together to represent brick walls or cast iron frames; lead and even plaster of paris and paper are occasionally used; wood, however, is mainly employed, and this frequently so coated with paint and varnish to cover defects, that the rapidity with which thousands of models were destroyed during the recent fire is not to be wondered at.

If this mass of imperfect models had done no more harm than to invite ridicule and unfavorable criticism, the only regret might be that so much valuable space was devoted to them, but they have been a source of infinite mischief. A rule of the Patent Office requires that the drawings shall accord with the models, and the consequence of this has been the reproduction in the drawings attached to Patents, of many absurdities which appear in the models.

But this is not all; the model halls of the Patent Office are the hunting grounds of Patent pirates and gamblers in Patent property.

A new, profitable and popular invention always attracts the attention of the community, but unfortunately at the same time excites the cupidity of the men whom my friend Mr. Dodge properly described to your Honors as sharks and speculators, armed with fine tooth combs to rake up some old Patents which can be reissued to cover the successful invention. One of these men comes across an old defunct Patent, says Mr. Dodge, and goes and buys it probably for a song. He has the specification and claims framed to cover the successful machine, and when he gets the reissued Patent, proceeds to levy on the manufacturer, who must either accede to his terms or submit to tedious and costly litigation.

On the same subject Mr. Livermore, in his argument before your Honors, said, "look at these little models. Many of these represent a walking beam, for instance, by a piece of metal no

larger than a pen-holder, a thing which may be broken, twisted, bent, altered in various ways by the fingers."

"Other pieces are represented by little pieces of wood glued to other pieces of wood. They may come apart. Material alterations may be made by accident or design in these models. No man can tell whether the models were originally filed as they appear to-day. Perhaps, and upon these alterations I speak advisedly from instances which I know have happened, upon these models, altered in that fashion, new descriptions of new inventions which never existed in the mind of the Patentee, are incorporated into the new Patent, and the public are made to suffer."

General Leggett said : "In these reissues, more deviltry, if I may be permitted to use the phrase, creeps into the practice of the Patent Law than everything else put together."

The Honorable Commissioner, in his report of December 11, says :

"The amendment of the specification on reissue by the model gives opportunity for the suspicion of fraud in many cases. These models occupy large space, and it is not practical to keep them in such close and faithful custody as not to give sometimes the opportunity to change a model by adding or subtracting some part so as to materially change the invention—a very slight change in some instances amounting to a very substantial difference."

No one at all familiar with Patent Office matters doubts for a moment that this has been done over and over again, and that hundreds of fraudulent reissues have been obtained by deceptions practiced on Examiners.

Sometimes these attempts assume a ludicrous aspect. There is a well authenticated case, in which an unscrupulous attorney borrowed from the Patent Office a model ostensibly for the innocent purpose of making a proper drawing for a reissue application, but really to alter the model to pave way for a reissue claiming what the patentee had never invented. The alteration was made, and the reissue was granted. To the consternation of the party in whose interest this fraud was committed, the alteration was not made as he wished it, the fraud was stupidly perpetrated, and he insisted upon his attorney

getting another reissue. He borrowed the model again, and re-altered it, but the fraud was detected.

In another case the specification was altered to pave the way for a fraudulent claim, which was allowed; but the device would not work in accordance with the interpolated description, and the ambitious and unscrupulous Patentee was hoisted by his own petard, fired by an attorney not smart enough to be a dangerous rogue. There have been a great many instances of this character. Patentees are frequently urged by hungry attorneys to reissue their Patents, which are damaged instead of being amended by the process.

The reissuing of Patents from model as practiced for many years is all wrong.

It opens the doors for the perpetration of frauds on inventors, manufacturers, and the public; it has been the means over and over again of disturbing the economy of our manufacturers; it has tempted solicitors to do unscrupulous things under the inducement of large fees, and there are many instances in which professional men have neglected their legitimate business to become speculators, and grope about the model room for some obscure patented invention which can, by a fraudulent reissue, be converted into a prize for which the public has to pay.

Combinations of speculators and Patent Practitioners are based on reissues of doubtful character. Lawyers will sometimes operate on shares, with Reissued Patents, the amount of their fees depending upon the sums they can squeeze out of innocent manufacturers under threats of litigation, a practice denounced in appropriate terms by his Honor, Senator Morgan, at the hearing before your Committee, on November 19.

I should notice here that twenty years ago the Patent sharks and speculators referred to were comparatively few, and that, very few, if any, Patent Lawyers and Patent Solicitors had joined their ranks.

My remarks, gentlemen, are not directed to the inventors, patentees, and manufacturers who work under Patents, and who, desiring to strengthen their positions, purchase Patents, and obtain honest reissues, but to speculators, and especially to those professional scavengers who, neither inventors nor producers, are the parasites of our Patent system, and prey upon manu-

facturers and patentees frequently with such success as to induce people to think that Patents are granted not "to promote the progress of the useful arts," but in the interests of non-producing speculators.

The model system has been the great promoter of this state of affairs, and has done more, by affording opportunities for fraudulent reissues, to bring our Patent system into disrepute than all other things put together.

The Hon. Commissioner of Patents, as a remedy for this great evil, suggests such an alteration in the law that in reissue applications no amendments, alterations, or additions can be made by reference to the model.

I am disposed to go even further than this, and to acquiesce in the suggestion of Mr. Livermore that "the specification shall be amended only by itself or the drawing of the Patent," because these are the only documents with which the public is familiar, and that a patentee shall have no right to lug into a reissue all that appears in the papers on file, with which the public is not familiar.

But the more moderate restriction upon reissues suggested by the Hon. Commissioner, together with the proposed abandonment or modification of the model system, will go far to put a stop to the evils I have mentioned, and it will meet with urgent opposition on the part of many practitioners, and certainly on the part of speculators.

This opposition will, doubtless, come in the shape of an appeal on behalf of the poor inventor, the old cry of those who care least for the interests of inventors; they will say, don't legislate away an inventor's right to repair a Patent, the papers of which have been imperfectly drawn by some blockhead!

Now, the truth is, that the restrictions relating to reissues will be the best thing in the end for inventors, it will teach them to be cautious in making applications for Patents, and to steer clear of professional blockheads, and will disperse the speculators, who are the very worst enemies of inventors.

Returning to this collection of models in the Patent Office, I wish to impress upon your Honors the fact, that two-thirds of these models, as far as the detailed construction is concerned,

give about the worst idea possible of the material progress of the industrial arts in this country.

If solicitors object to the discontinuance of the model system, let them give some solid reasons for it; if the abolition of models is going to interfere with the prosecution of their business, let them honestly say so, but let us have no prating about the Patent Office models being a great national museum of industry, by men who know well enough that one half of these models are mechanical monstrosities.

Ninth :

That an industrial museum worthy of the name can be best established by permitting patentees and manufacturers to deposit at their option, and at their own cost, properly proportioned and working models of patented machines which have proved to be successful in practice.

The finest industrial museum in the world, is the Patent Office Museum at South Kensington; it is the pride of the English people and the English Government.

Let me tell you, gentlemen, how a museum rivalling that at South Kensington can be established in the Patent Office, without any expense whatever to the government.

The Hon. Commissioner of Patents tells us, that a large proportion of the models in the Patent Office serve no useful purpose; let these be returned to the patentees, and if they are not called for within a specified time, let them be sold by auction or destroyed.

Such of the models as are well and permanently made, with a regard for proper proportions, and of appropriate materials those models which are of real value as demonstrating our national progress in the useful arts, may be arranged as the nucleus of a national museum.

Let every manufacturer under Patents in the country have the privilege of depositing in the museum models of his patented machines, or specimens of his patented products, the models to be perfect, durable working representations of the full sized machine, made in accordance with proper rules, and the specimens of the manufactured articles to be the articles themselves or portions, of such a size as may exhibit their true

character ; these exhibits to remain in the custody of the Commissioner of Patents.

I venture to say that if this plan be adopted, there will be in the Patent Office, two or three years hence, a museum rivalling that at South Kensington.

The idea of manufacturers going to the expense of furnishing such models and specimens has been ridiculed by advocates of the old model system ; but these men must know very little of our manufacturers, and of the proper pride which they exhibit in the products of their workshops, when they imagine that they would not avail themselves of such an opportunity of displaying their inventions.

Of course none but successful inventors and manufacturers could afford or would desire to deposit expensive models ; hence we should have a collection of models of successfully working machinery of the best class. In place of rickety models of incipient inventions and immature experiments, we should have a grand industrial school, where young men could be properly educated to the position of Examiners, where the true state of our manufacturing industries would be exhibited to the public in place of the indifferent, useless, and ridiculous models which now disgrace the halls of the Patent Office.

I may conclude this portion of my brief with the following quotation from the Hon. Commissioners' report.

“In connection with this matter, I have suggested in the paper referred to, an amendment to section 484, which provides for the reception and custody by the Commissioner of Patents of working models of Patented machines and specimens of Patented articles and the like. These models and specimens, it is contemplated, will be only such as parties are manufacturing or using. A gallery filled with such specimens of articles of practical value will be an object of great interest, and will show in a substantial manner the manufactures of the country. If the proposed amendments are incorporated in the law, it will be practicable to fill the halls made vacant by the recent fire with models of machines used in various parts of the country, and of practical value, or with specimens of American Manufactures, and without any intermixture of material practically valueless for the purpose of illustration or exhibition.”

Tenth :

That ample provision should be afforded to inventors and the public for the examination of drawings of patented inventions.

I think, gentlemen, no one will contradict this last clause of the petition.

It has been publicly alleged by those who oppose the abolition of the model system, that if models are dispensed with, working drawings and such an increased number of sheets will be required that the cost of reproduction would be a serious tax on the government. I have already shown that the first statement about working drawings is little better than nonsense. Well selected and properly executed views appealing to the understanding, and more in accordance with the modern progress in drawing are required, and these will with rare exceptions require no more space, and sometimes very much less space than the clumsy, wretchedly, and cheaply executed views which so often disgrace the Patents of which they form a part.

This cry about increasing the government expenses by dispensing with models, and increasing the number of drawings has as little substance in it as the cry about the great national museum of industry.

I understand that most of the drawings of all Patents have been reproduced, and that the remainder can be completed at a comparatively low price, all the recent Patents being printed in full.

There can be no reason why several copies of all Patents should not be arranged and bound in classes, and open at all reasonable times for the inspection of such attorneys and such members of the public as may desire to ascertain the history of any invention or class of inventions.

When this is done, and I believe the Hon. Commissioner is taking the proper steps to bring it about, examinations can be made in much less time from these copies than from the models.

It becomes an important question of public policy, moreover, whether every large city in the Union should not be furnished with complete sets of these copies of Patents, for the cost of printing additional copies for this purpose would be trifling, and the advantage to inventors and the public throughout the country would be incalculable.

Gentlemen, I have extended my argument on behalf of the petitioners to a length which I did not contemplate when I commenced.

If my remarks have been tedious and rambling, my apology must be an earnest desire to convince you that our Patent Office model system is a bad system, and that public policy demands its abolition or modification, for the several reasons set forth in the petition.

(NOTE.)—Although the wonderful process of photo-lithography has been for some time extensively practiced, its capacity for producing exact copies of properly executed line drawings at cheap rates is not generally understood.

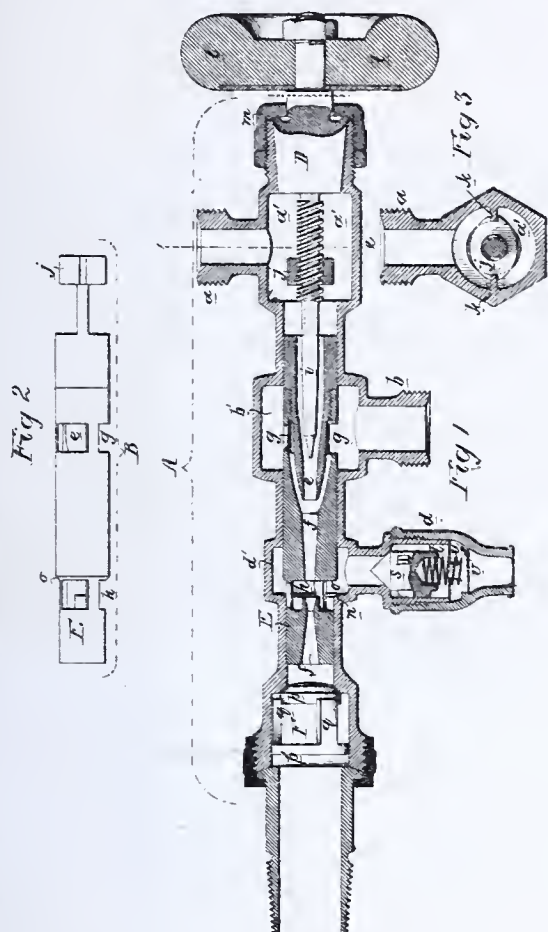
Each of the plates, numbered from 1 to 8, are photo-lithographic copies of as many Patent Office drawings, reduced to one-fourth of the size of the originals.

As an instance of the minute exactitude which can be attained by the process, four of these drawings, each reduced to the extent of about one-sixteenth of the area of the originals, are shown on the adjoining page.

J. FERGUS.
INJECTORS.

No. 174,509.

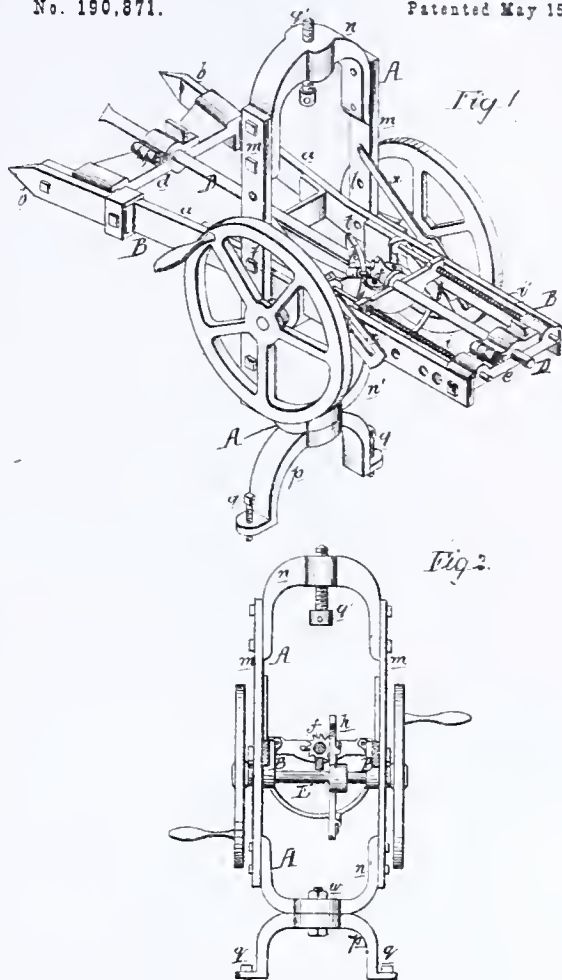
Patented March 7, 1876.



O. B. KEELEY & J. FLEMING.
ROCK-DRILLING MACHINE.

No. 190,871.

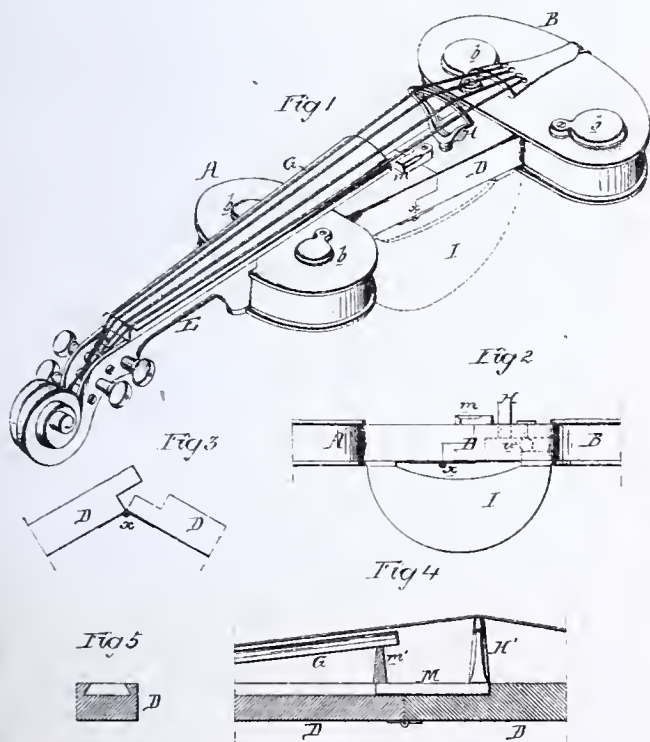
Patented May 15, 1877.



C. F. ALBERT.
VIOLINS FOR PRACTICE.

No. 189,677.

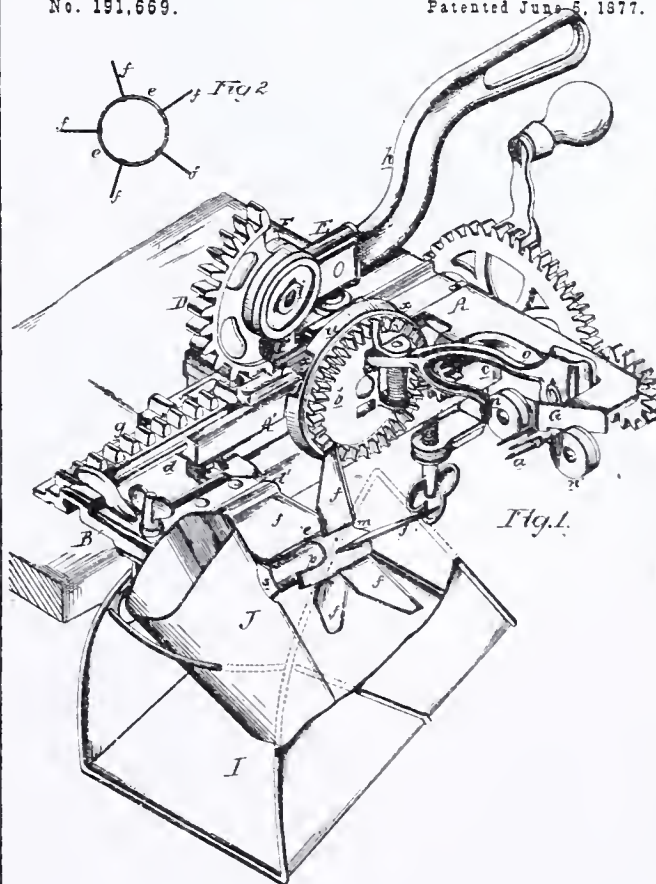
Patented April 17, 1877.

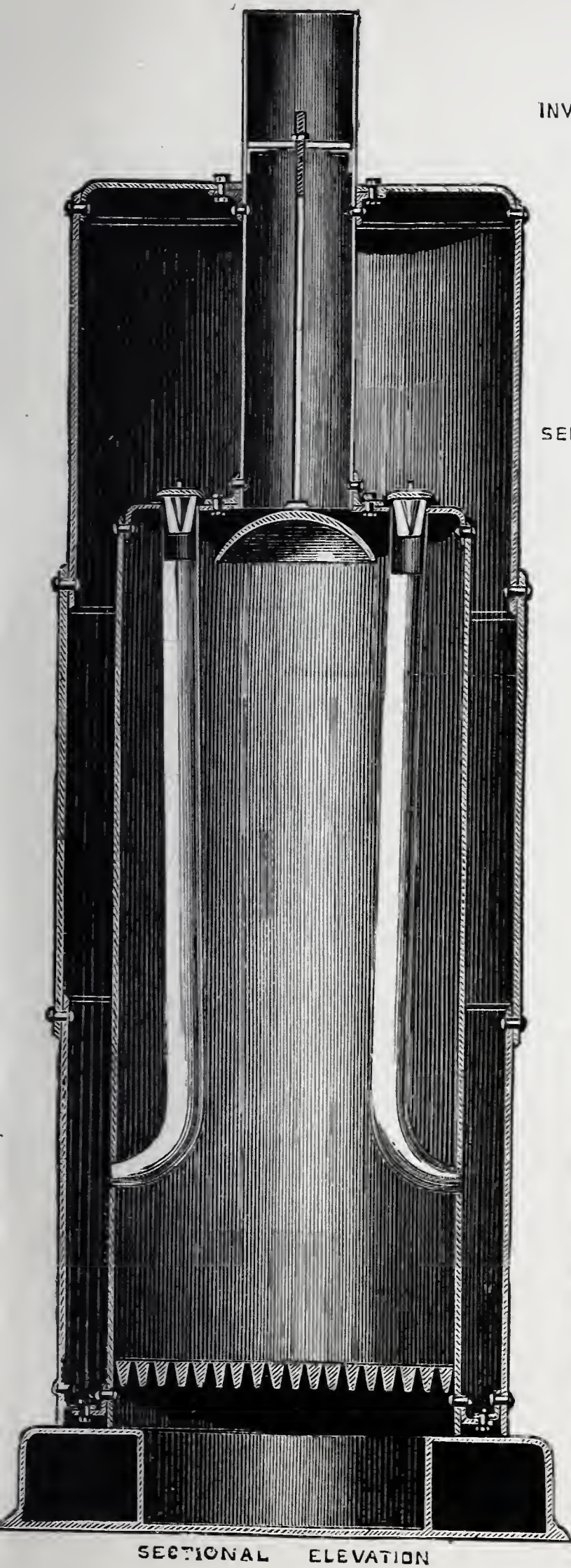


W. M. GRISCOM.
COMBINED APPLE PARSER AND CORER.

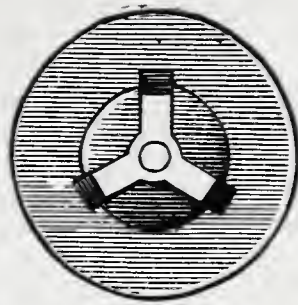
No. 191,669.

Patented June 5, 1877.



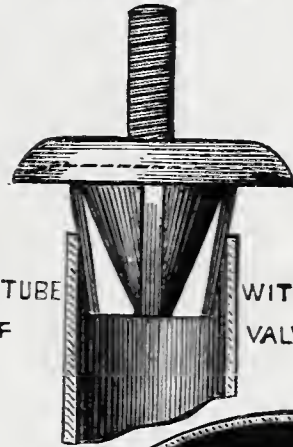


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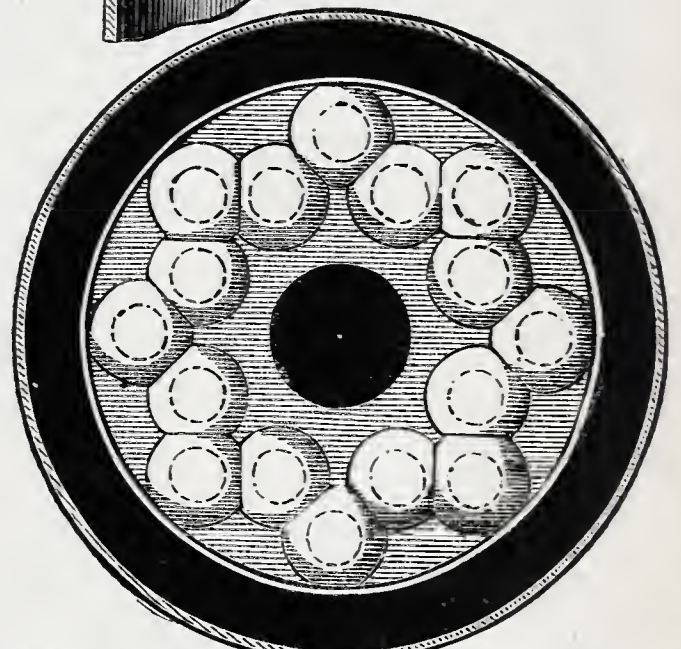
PLAN OF VALVE

TOP OF TUBE
WITH SECTION OF VALVE

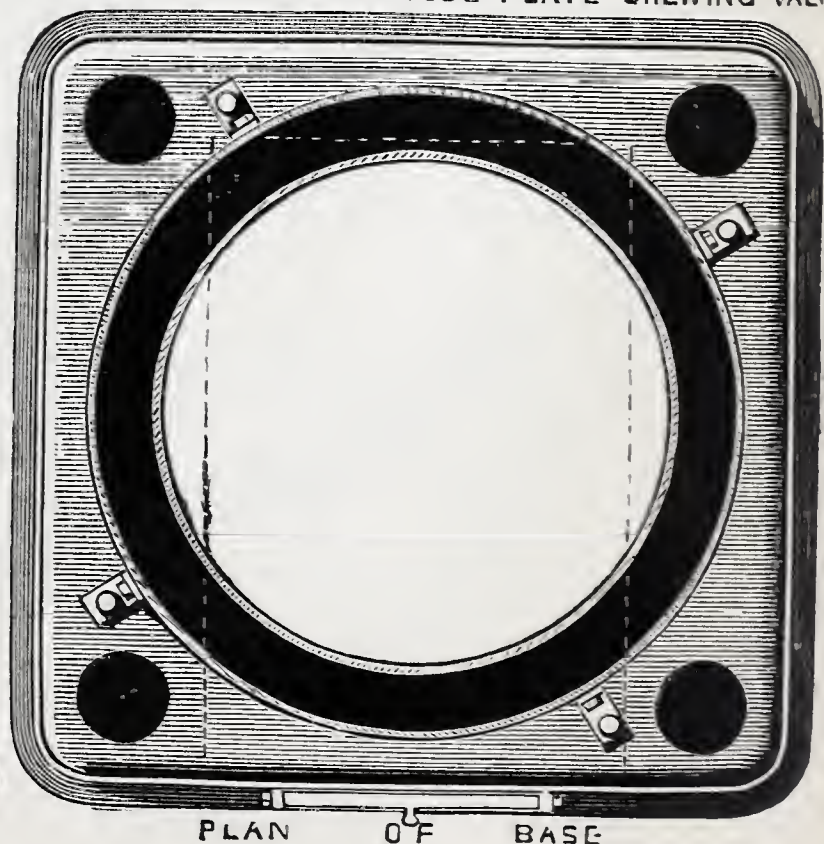


SECTION OF TUBE
OF

WITH ELEVATION
VALVE

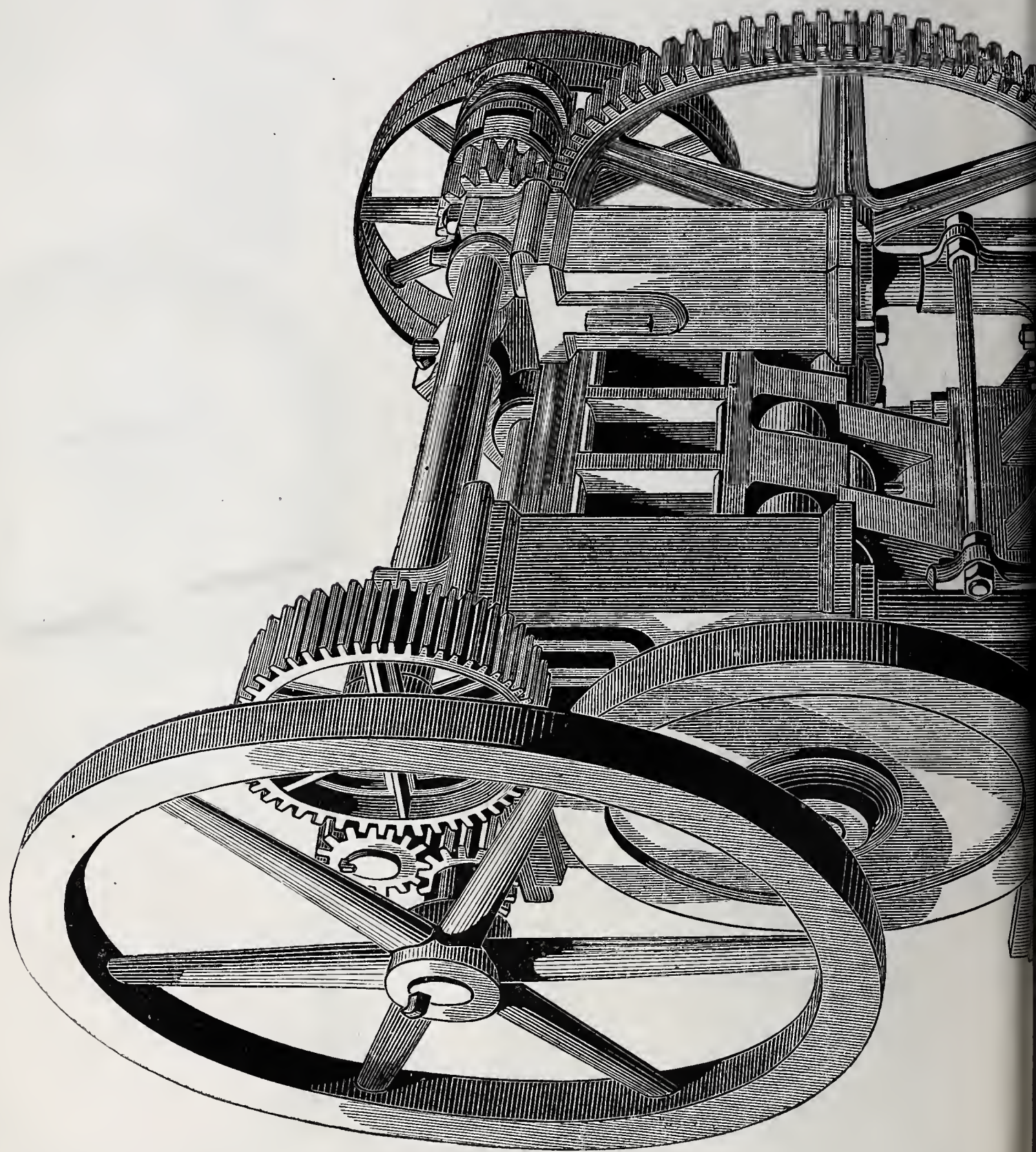


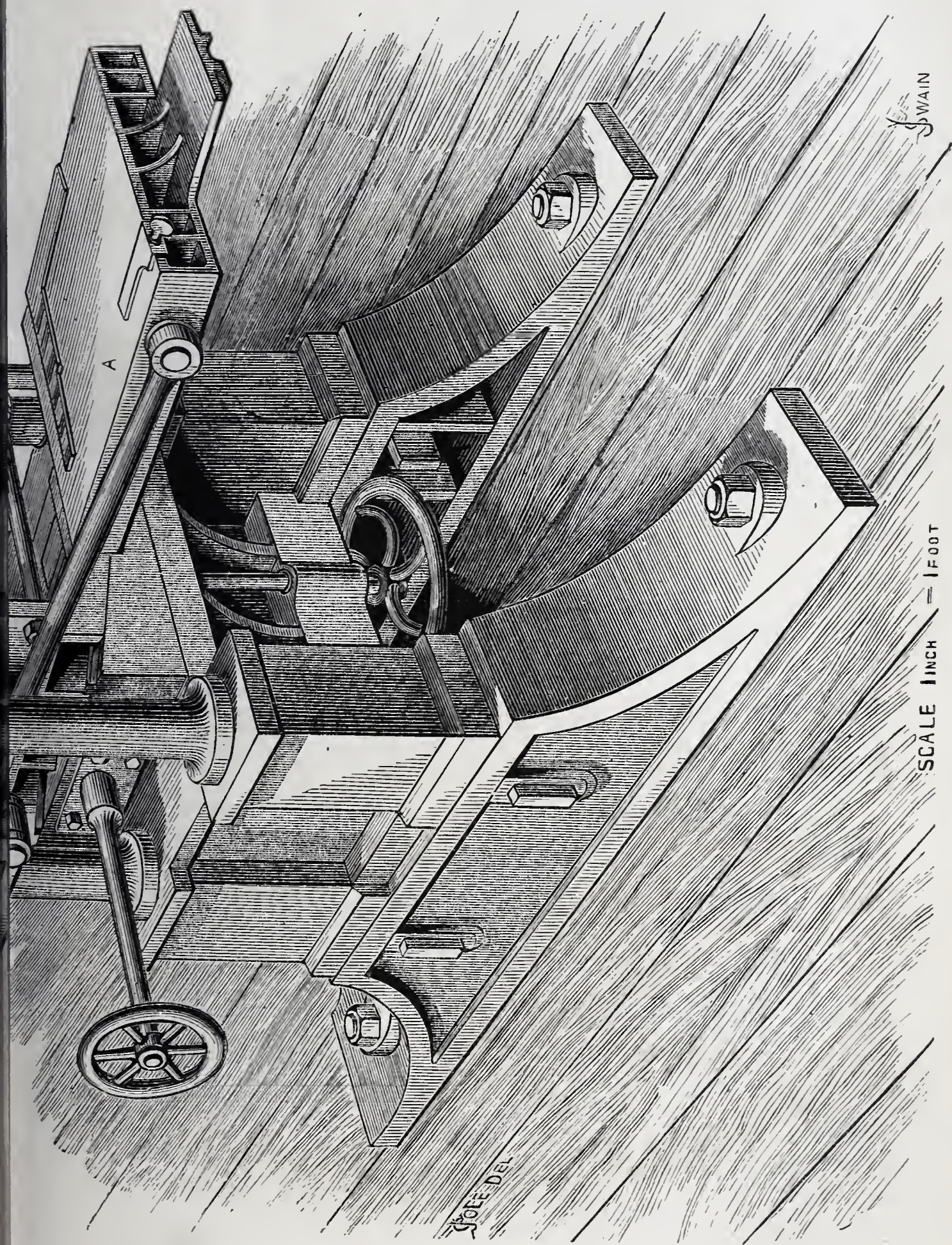
PLAN OF TOP OF TUBE PLATE SHEWING VALVE

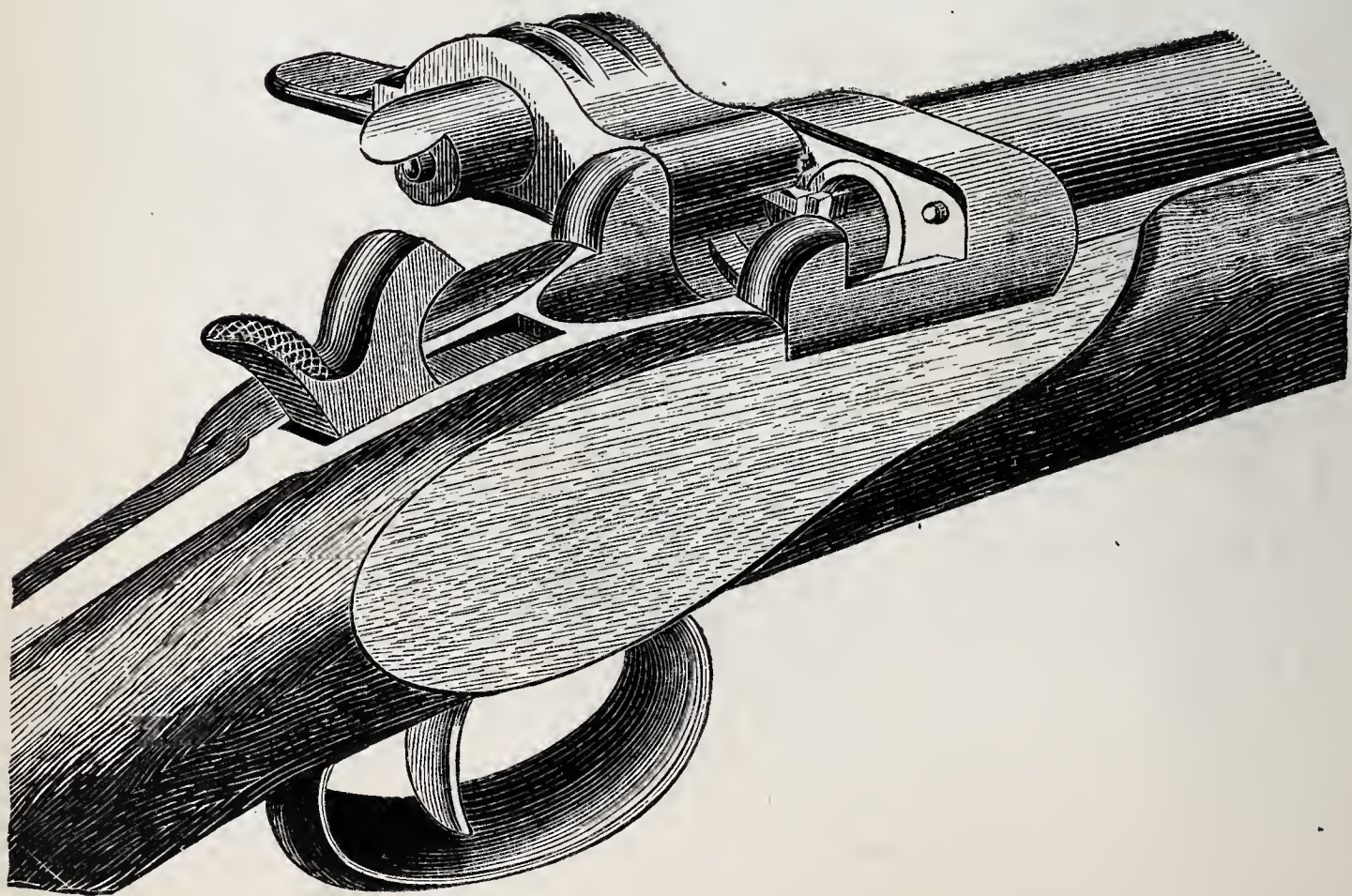
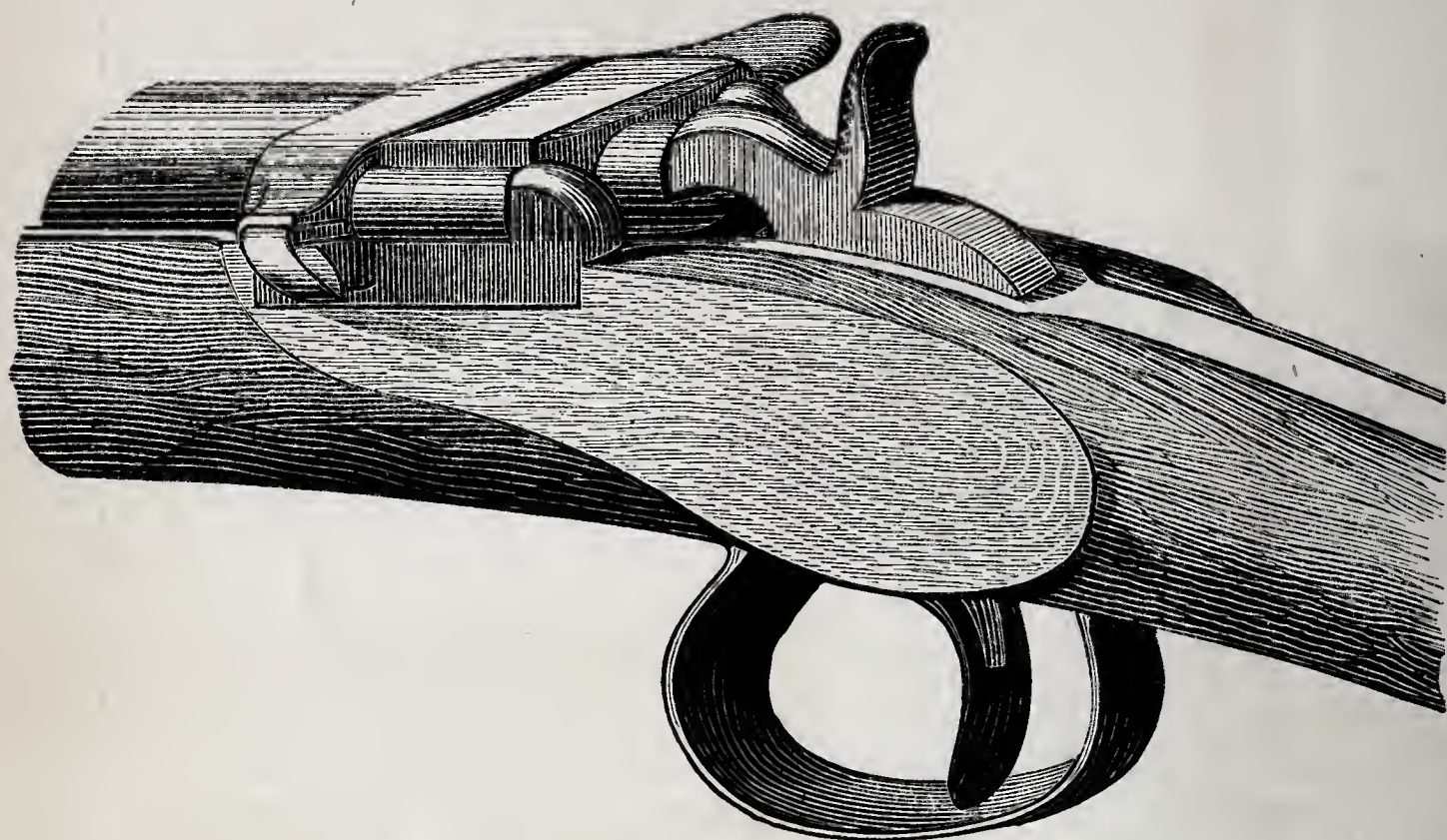


PLAN OF BASE

Plate 2.







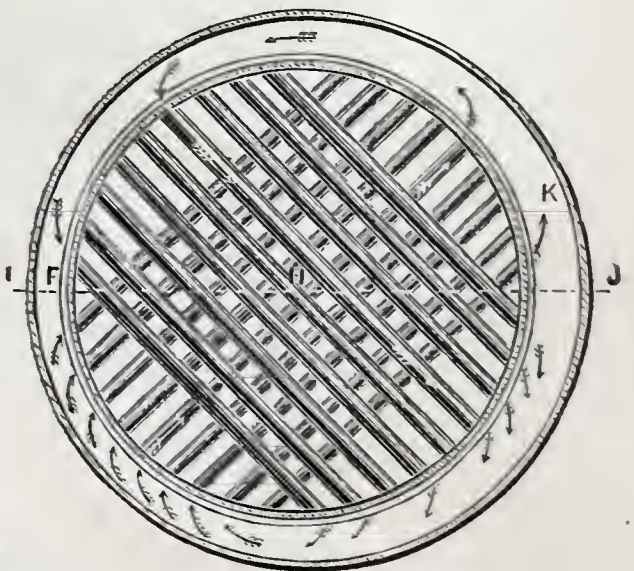
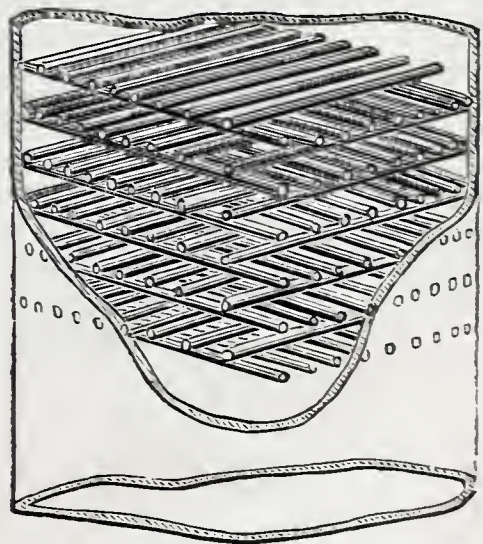
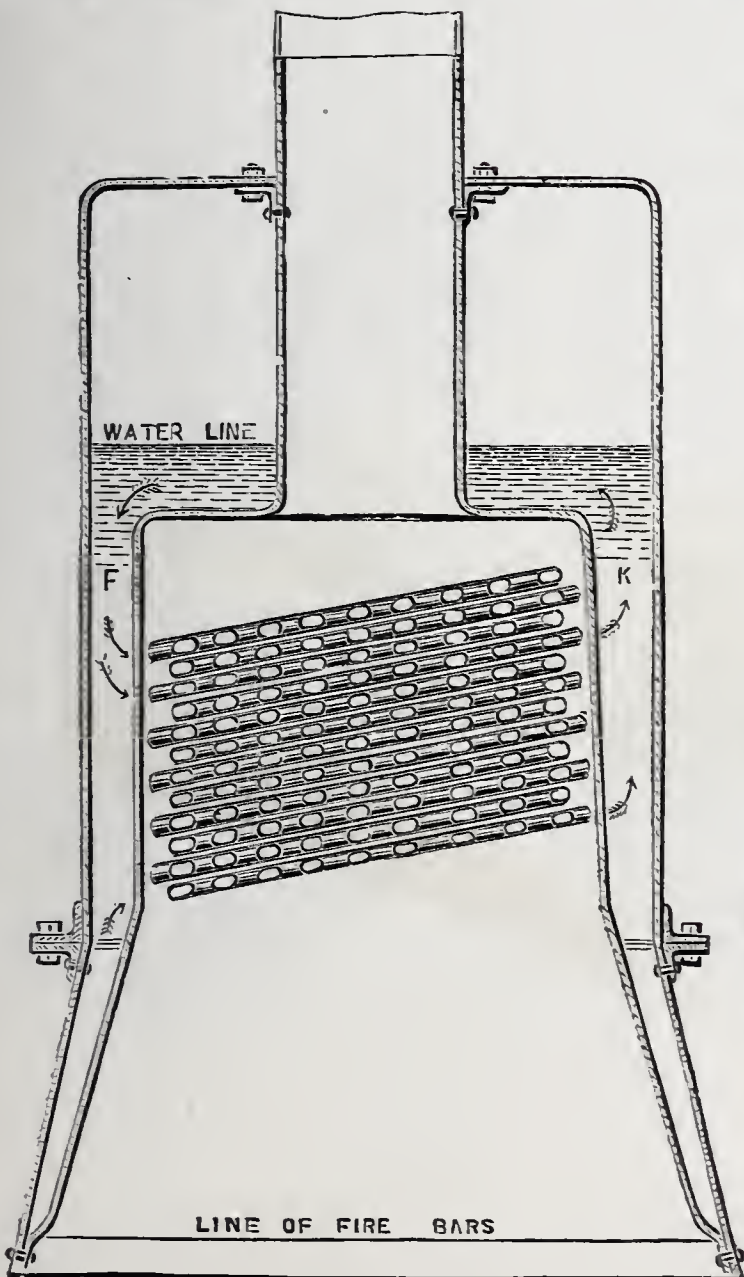
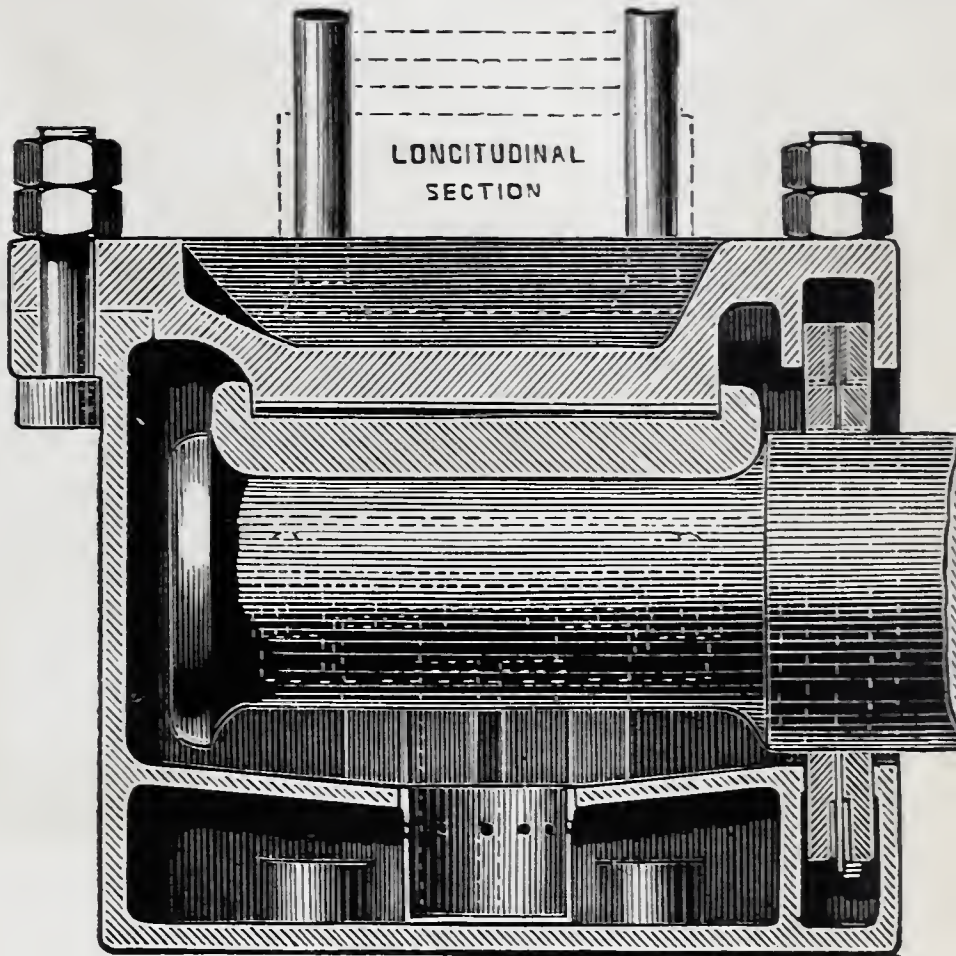
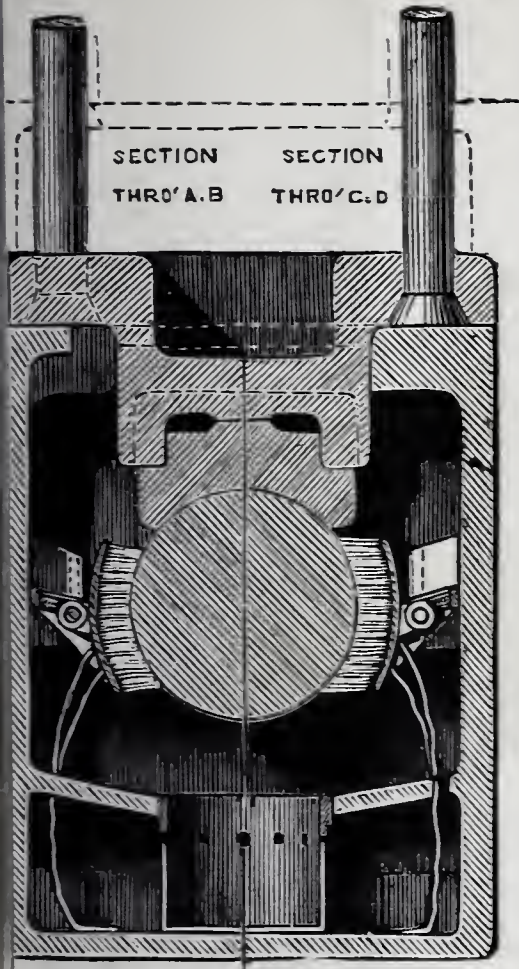
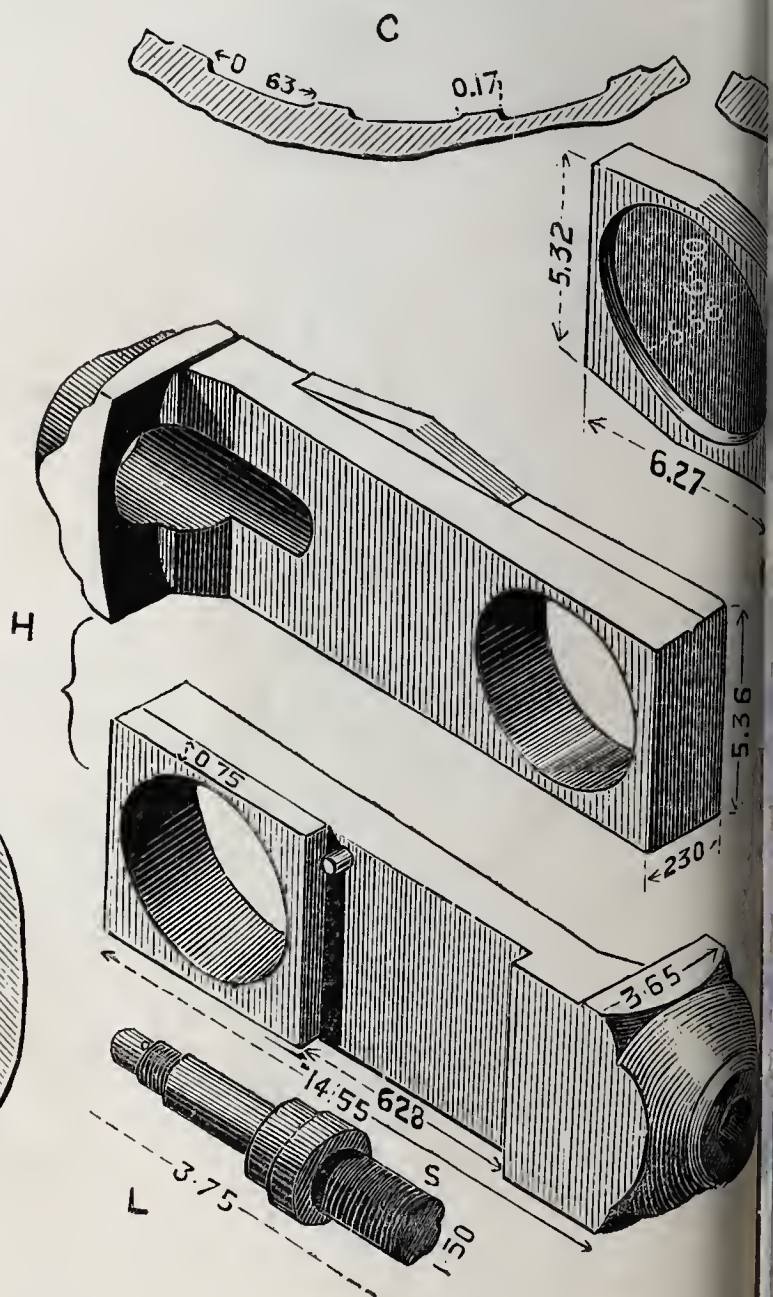
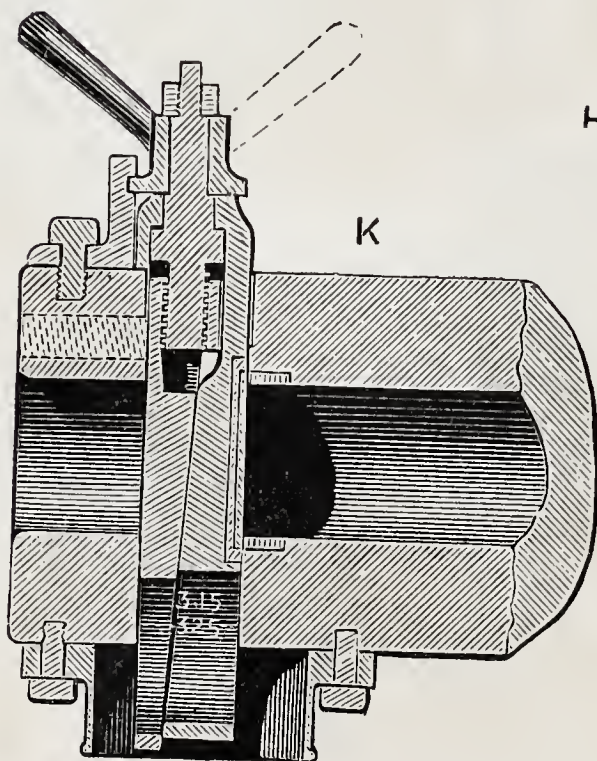
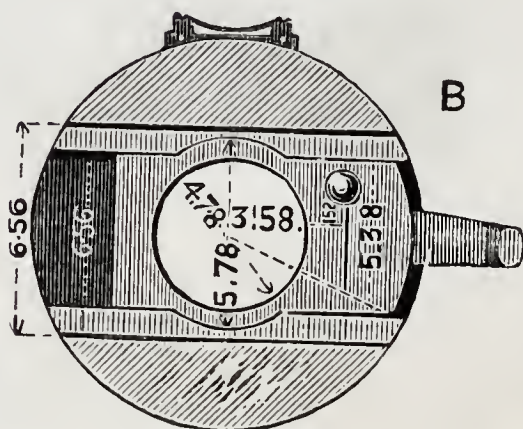
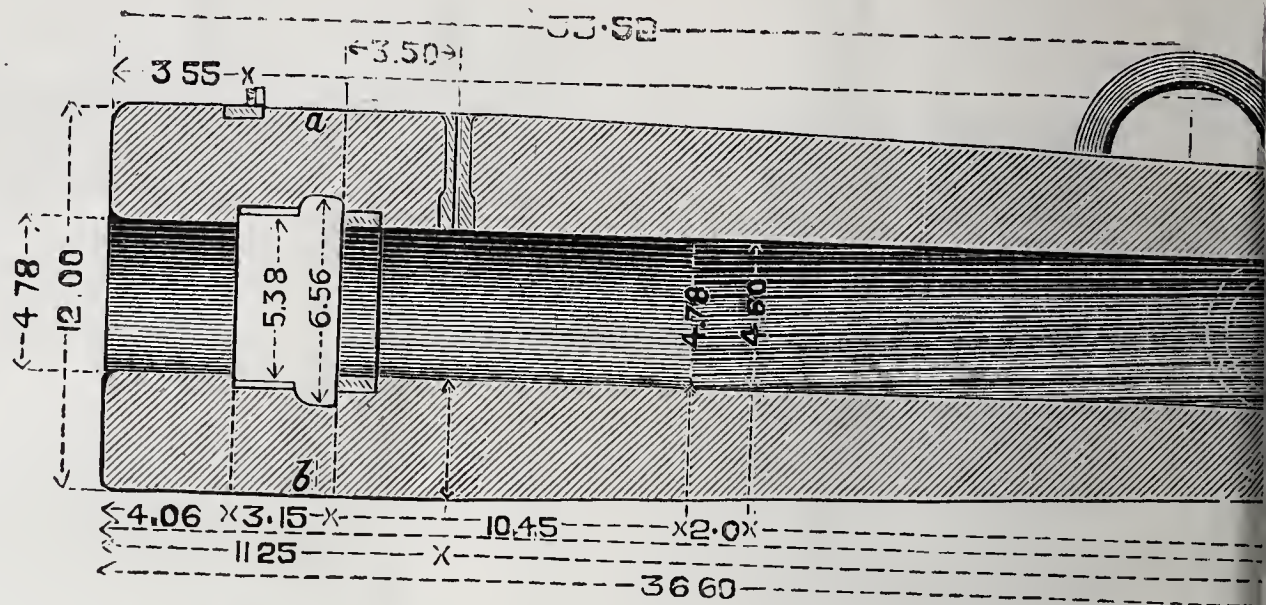
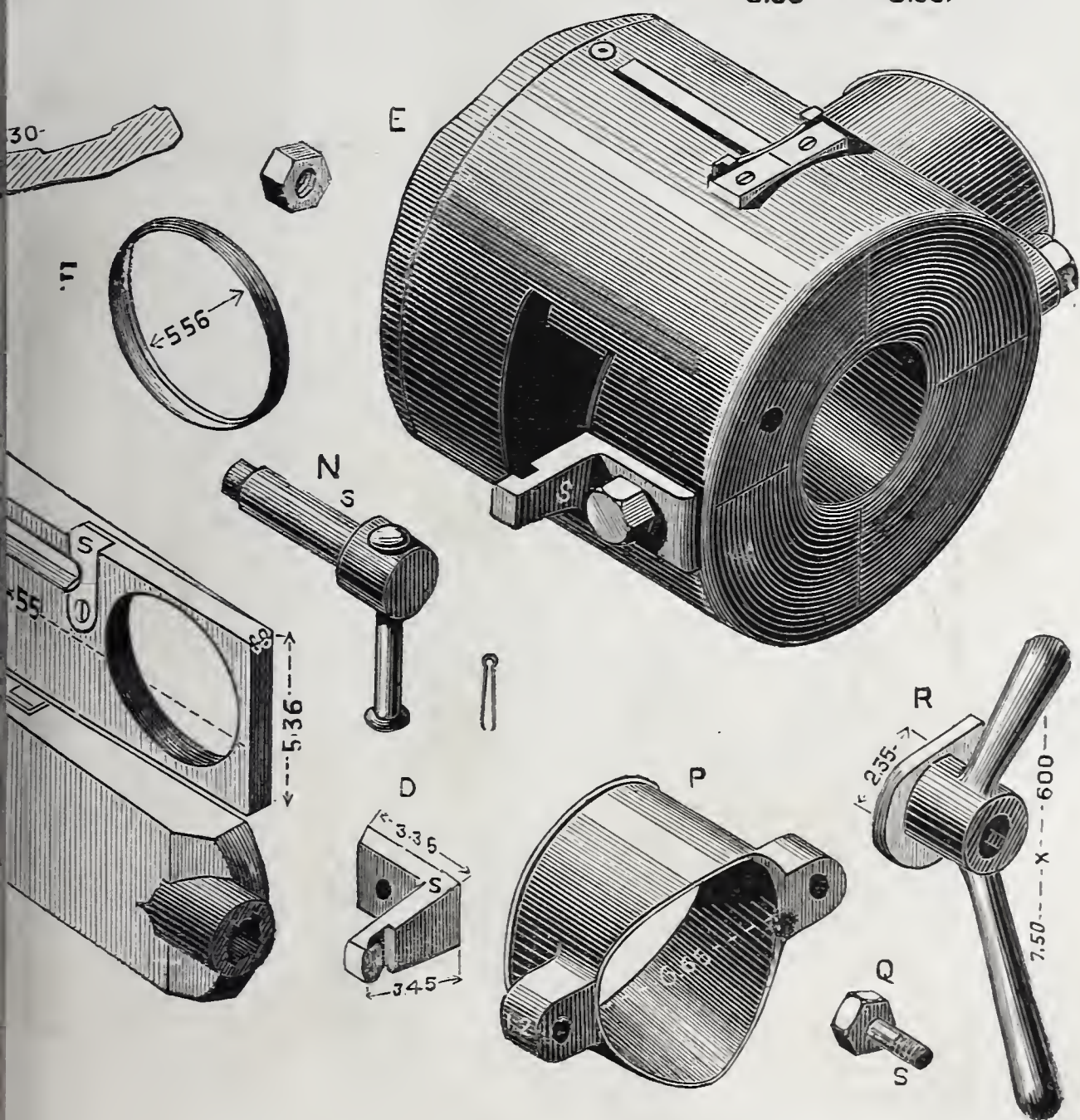
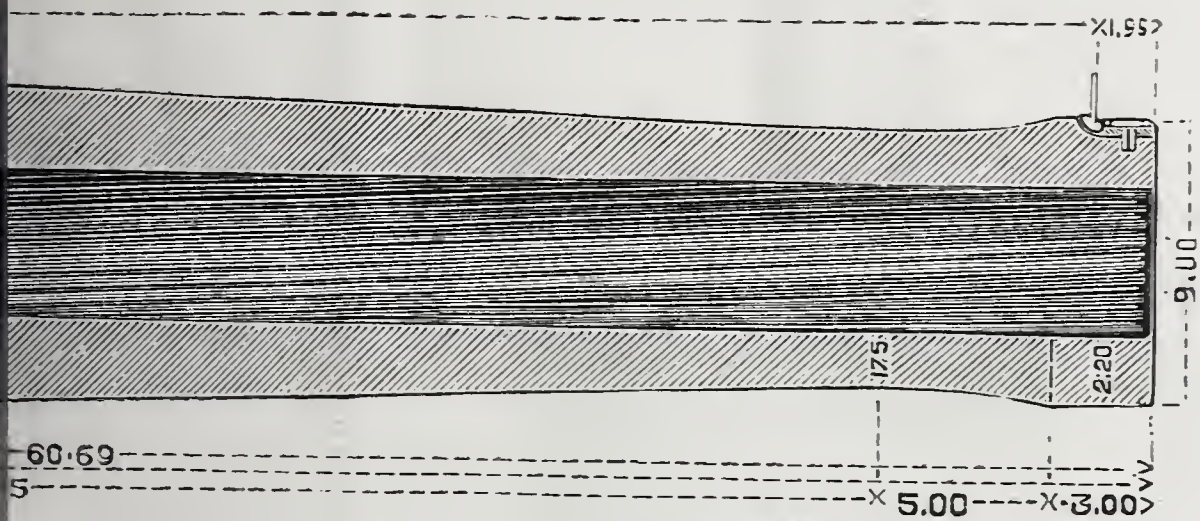
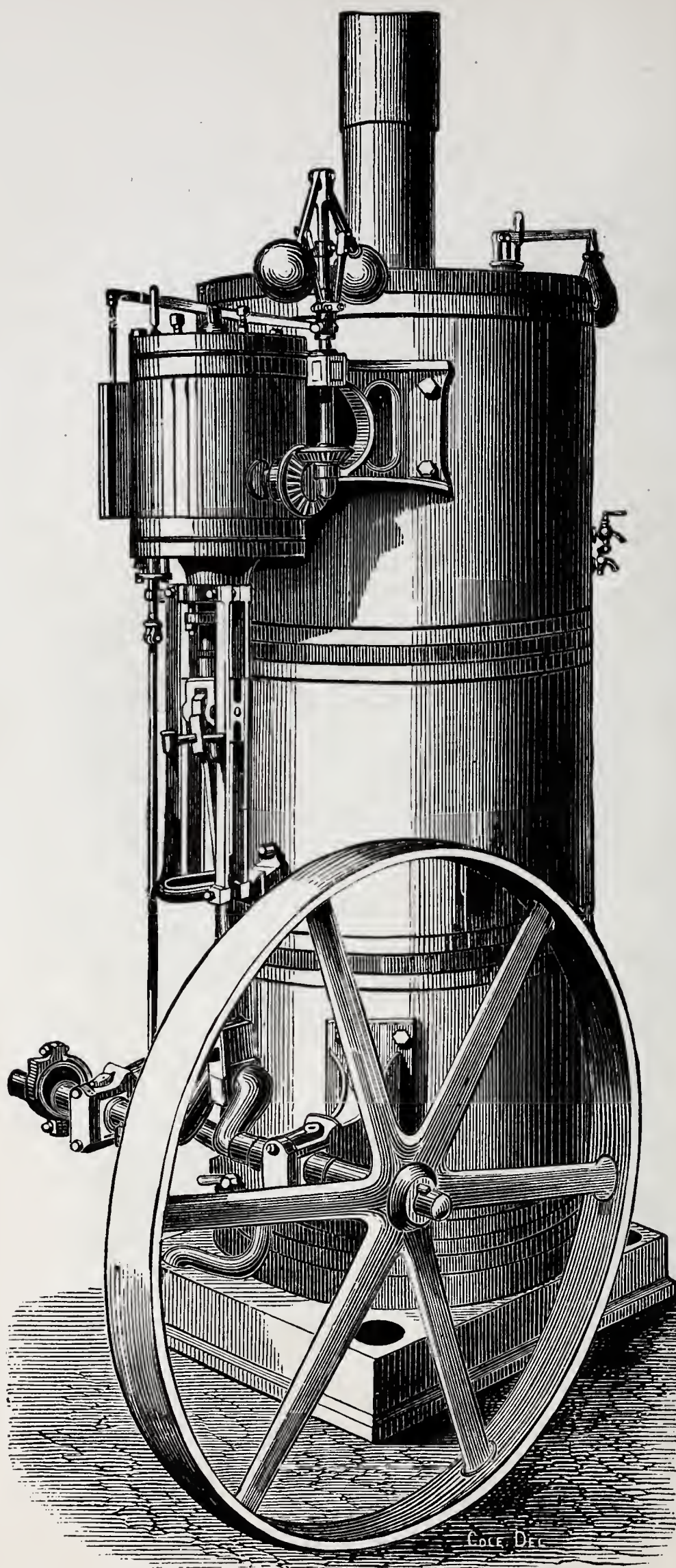


Plate 5







C. H. & F. LOGAN.

Markers, Seed-Planters, and Cultivators.

No. 145,220.

Patented Dec. 2, 1873.

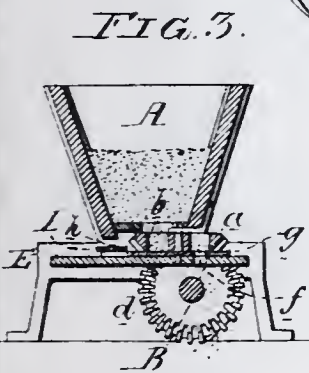
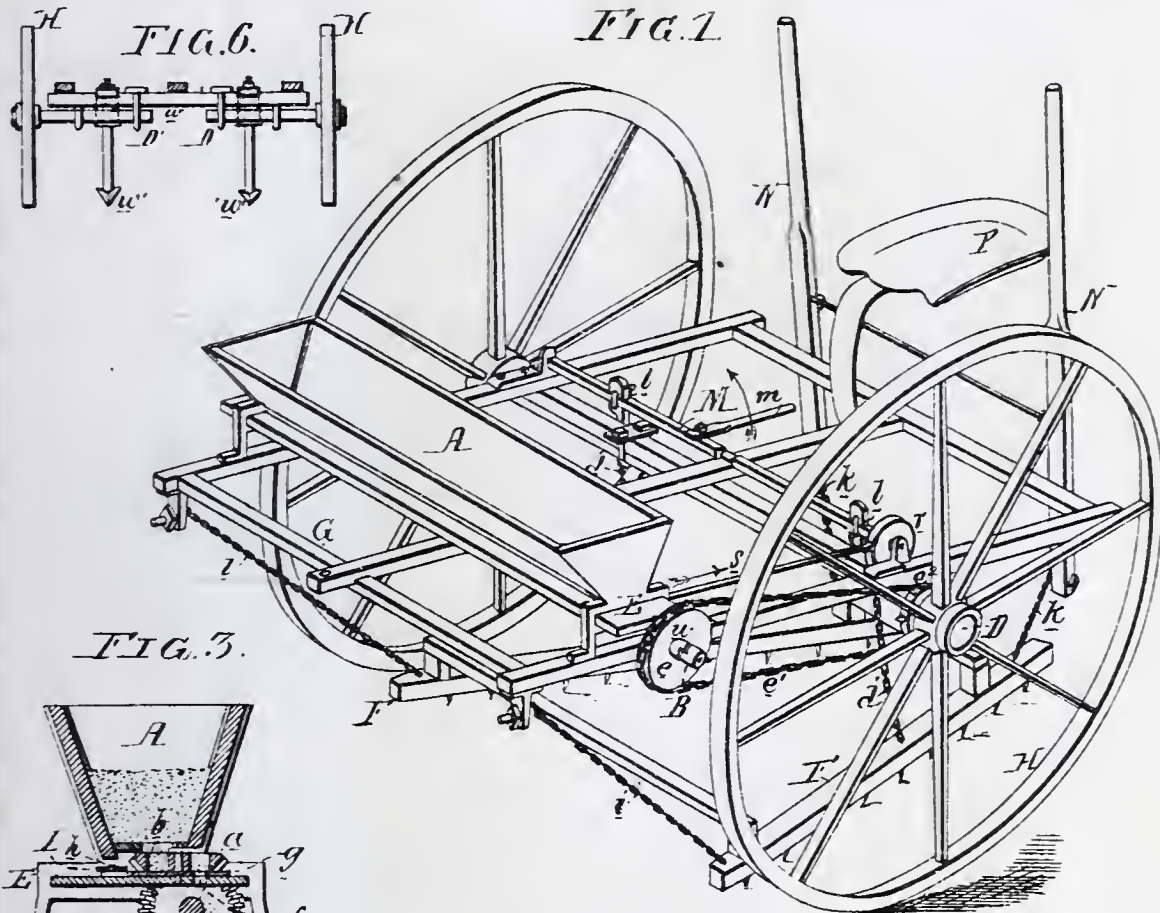


FIG. 2.

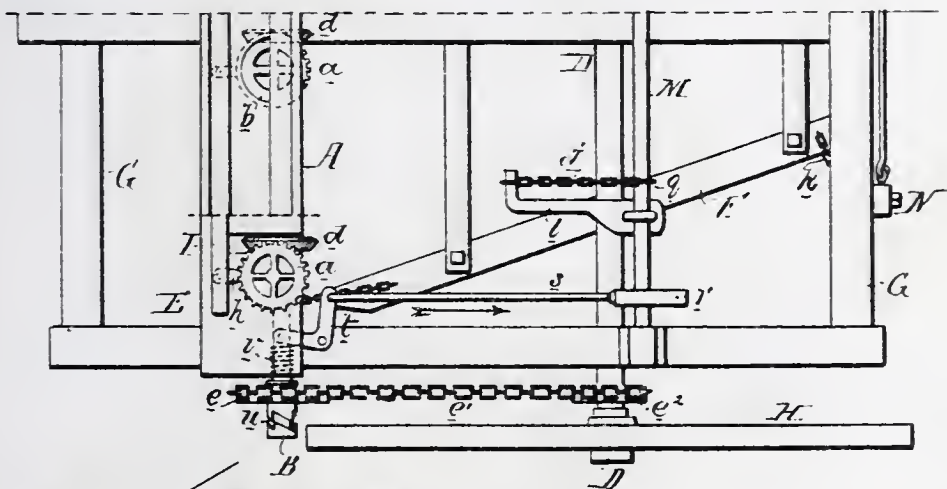


FIG. 4.

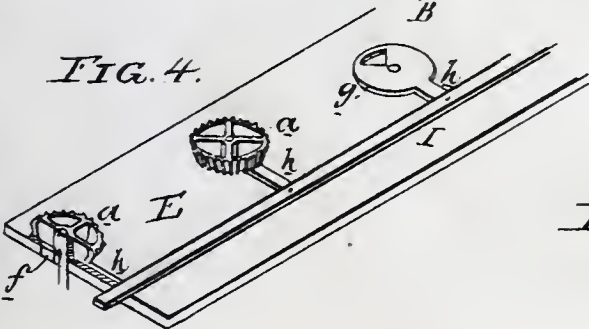
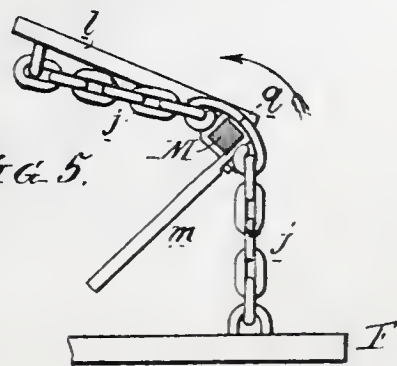


FIG. 5.

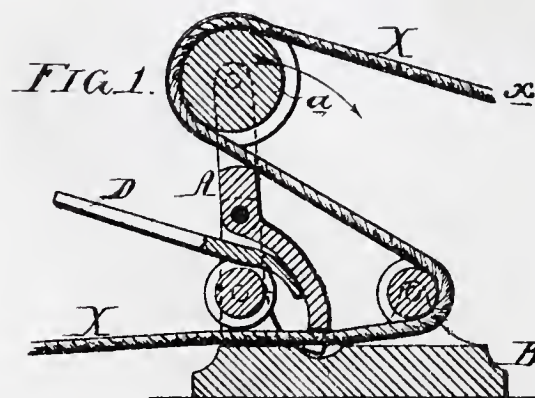
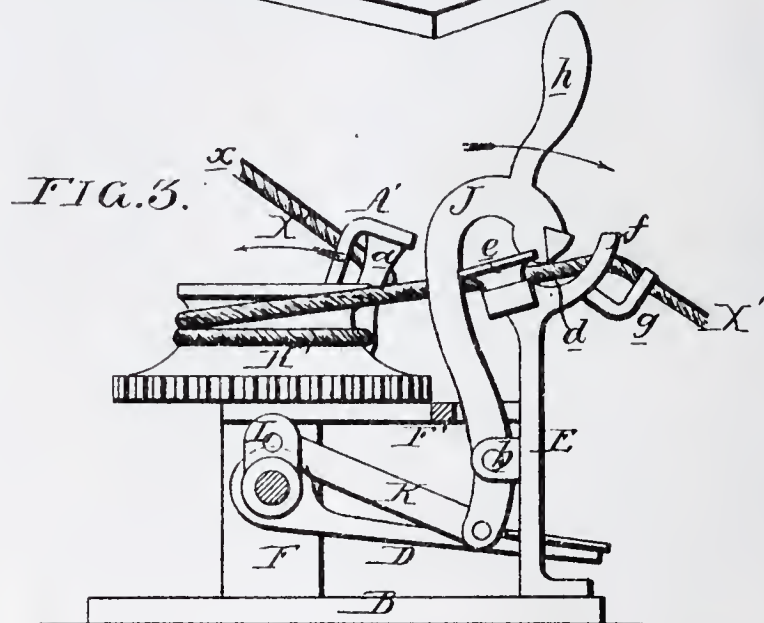
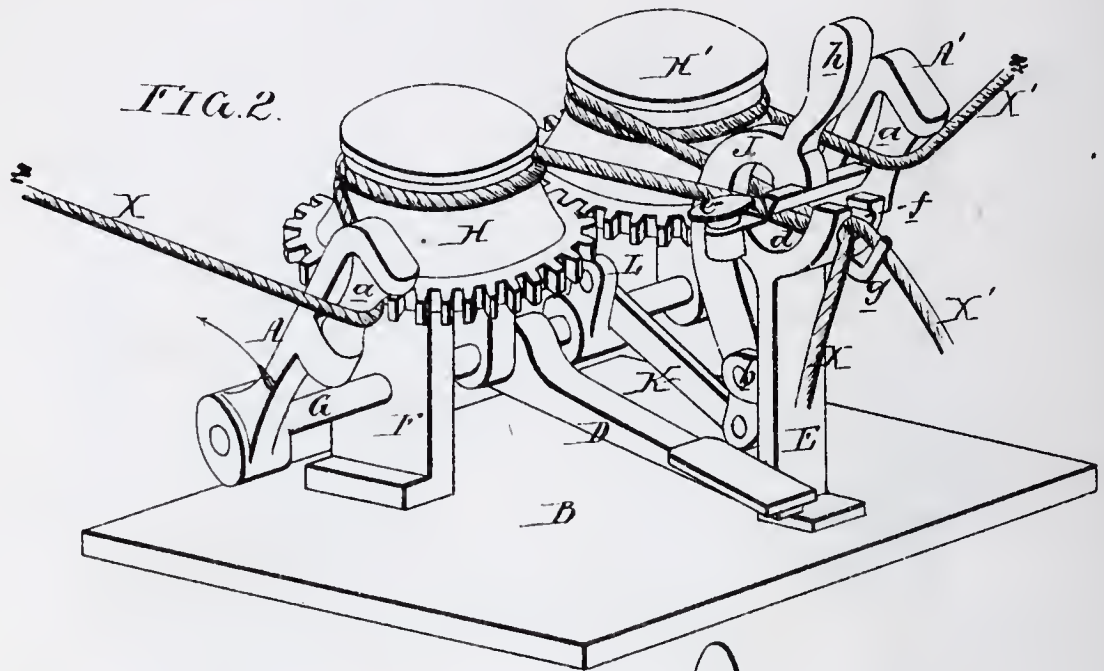


W. HART.

Self-Braking, Lowering, and Hoisting Apparatus.

No. 142,017.

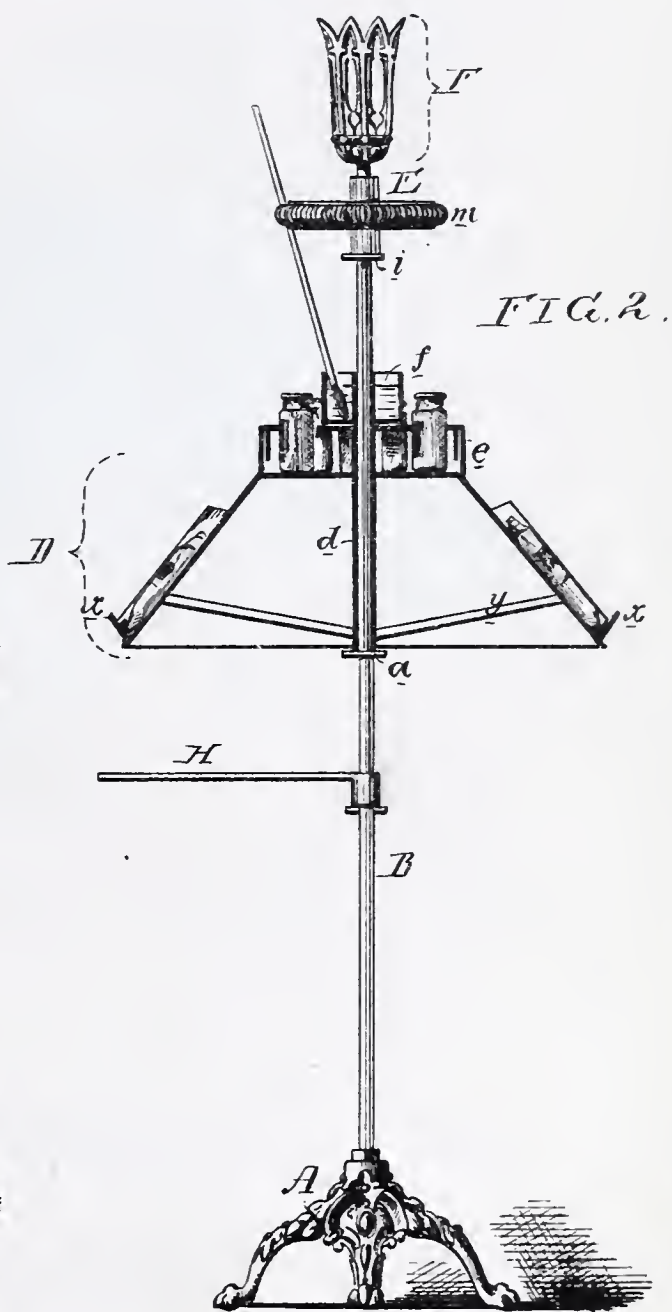
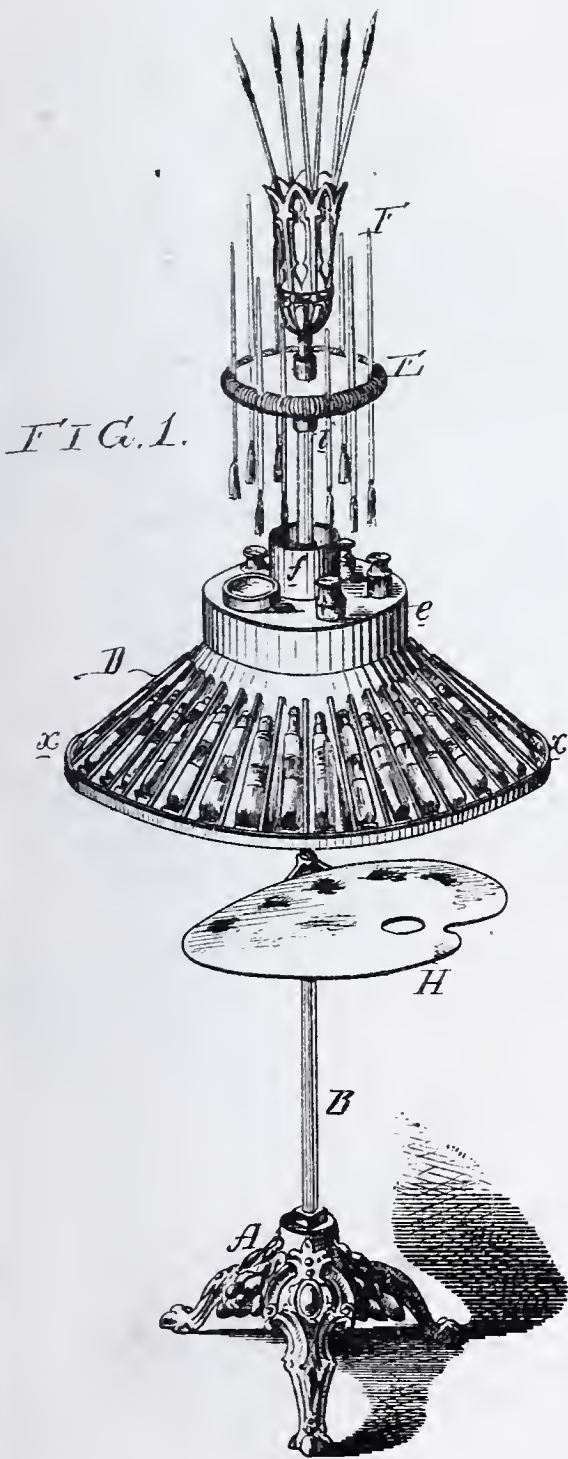
Patented August 19, 1873.



S. JAMES.
Artists' Color-Stands.

No. 156,572.

Patented Nov. 3, 1874.

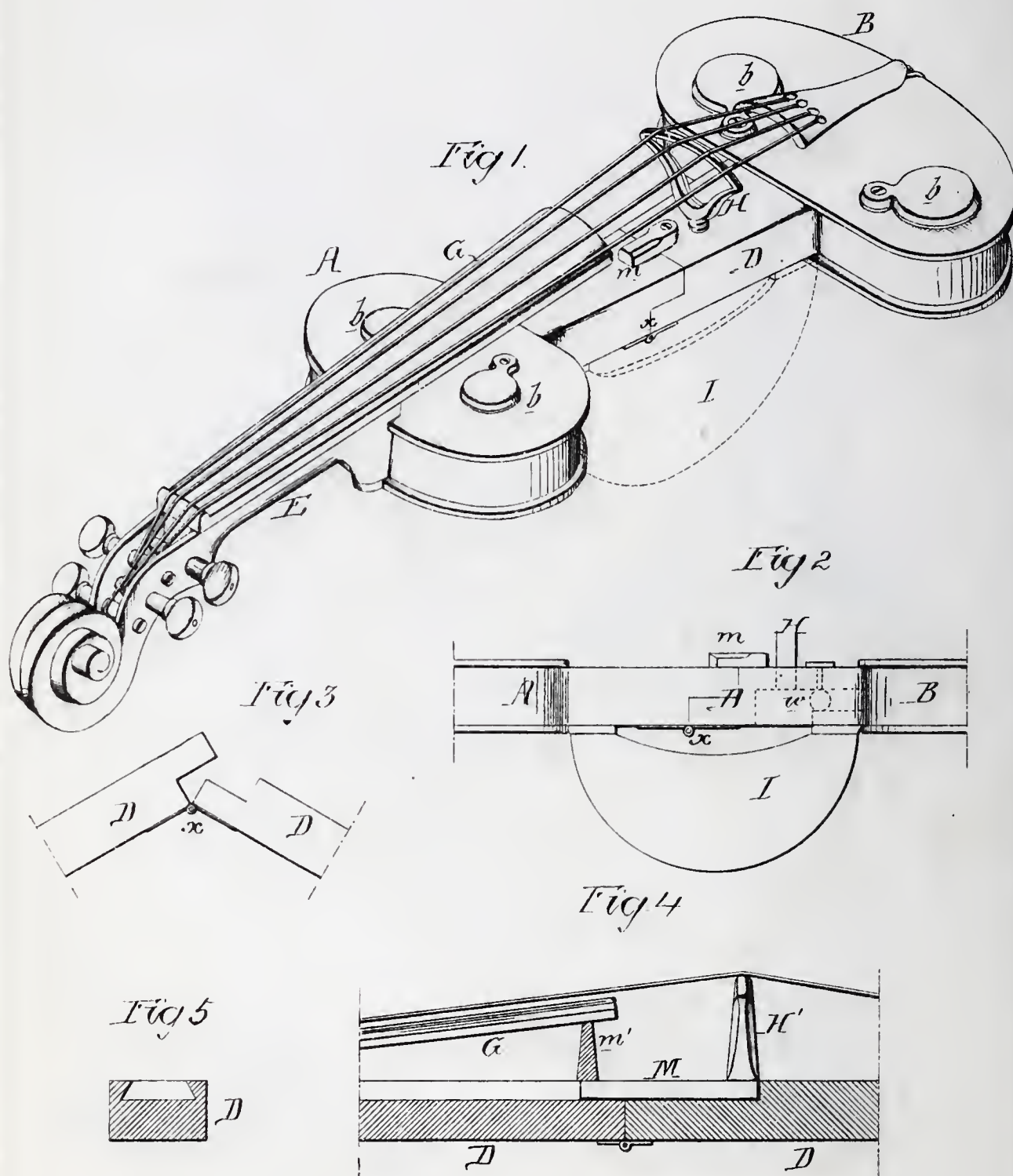


C. F. ALBERT.

VIOLINS FOR PRACTICE.

No. 189,677.

Patented April 17, 1877.

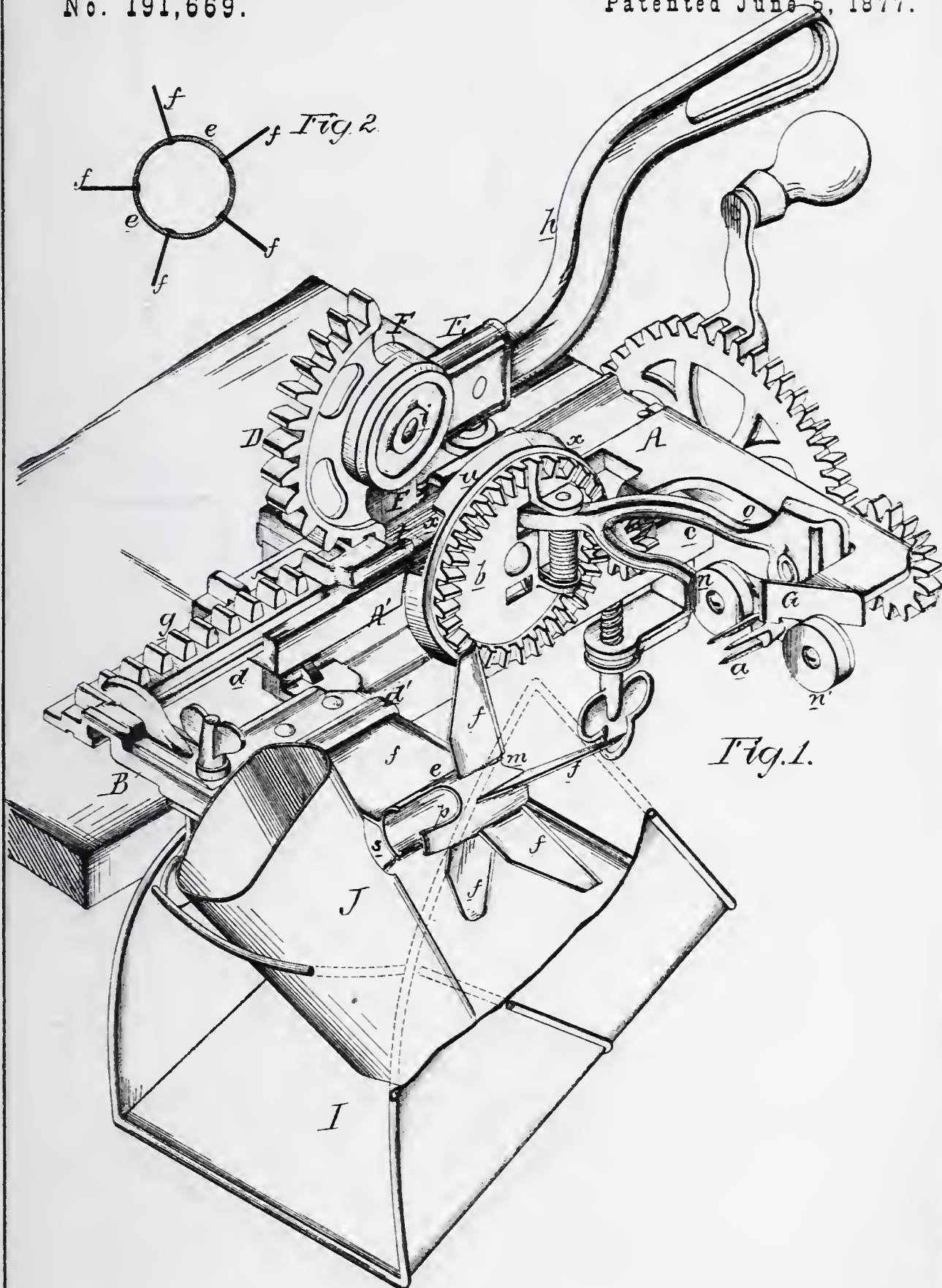


W. M. GRISCOM.

COMBINED APPLE PARER AND CORER.

No. 191,669.

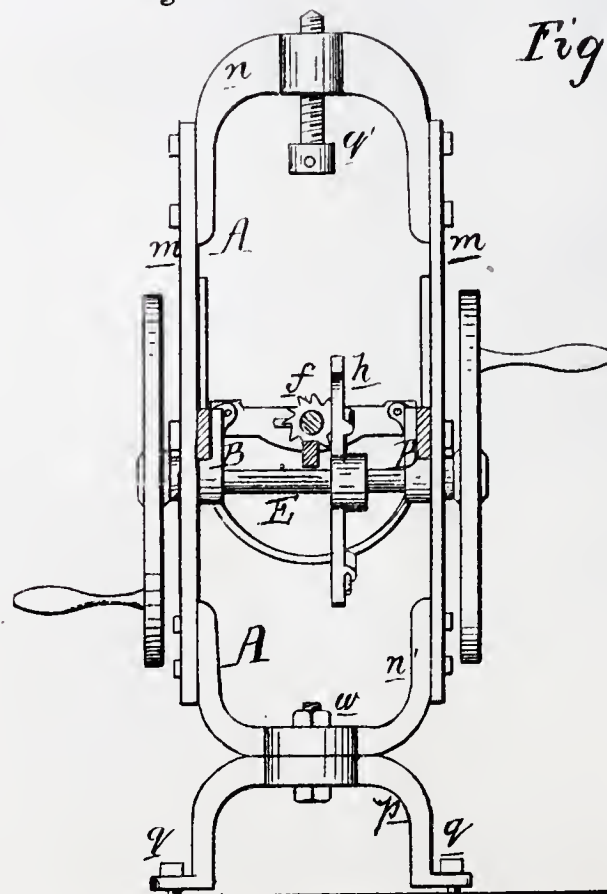
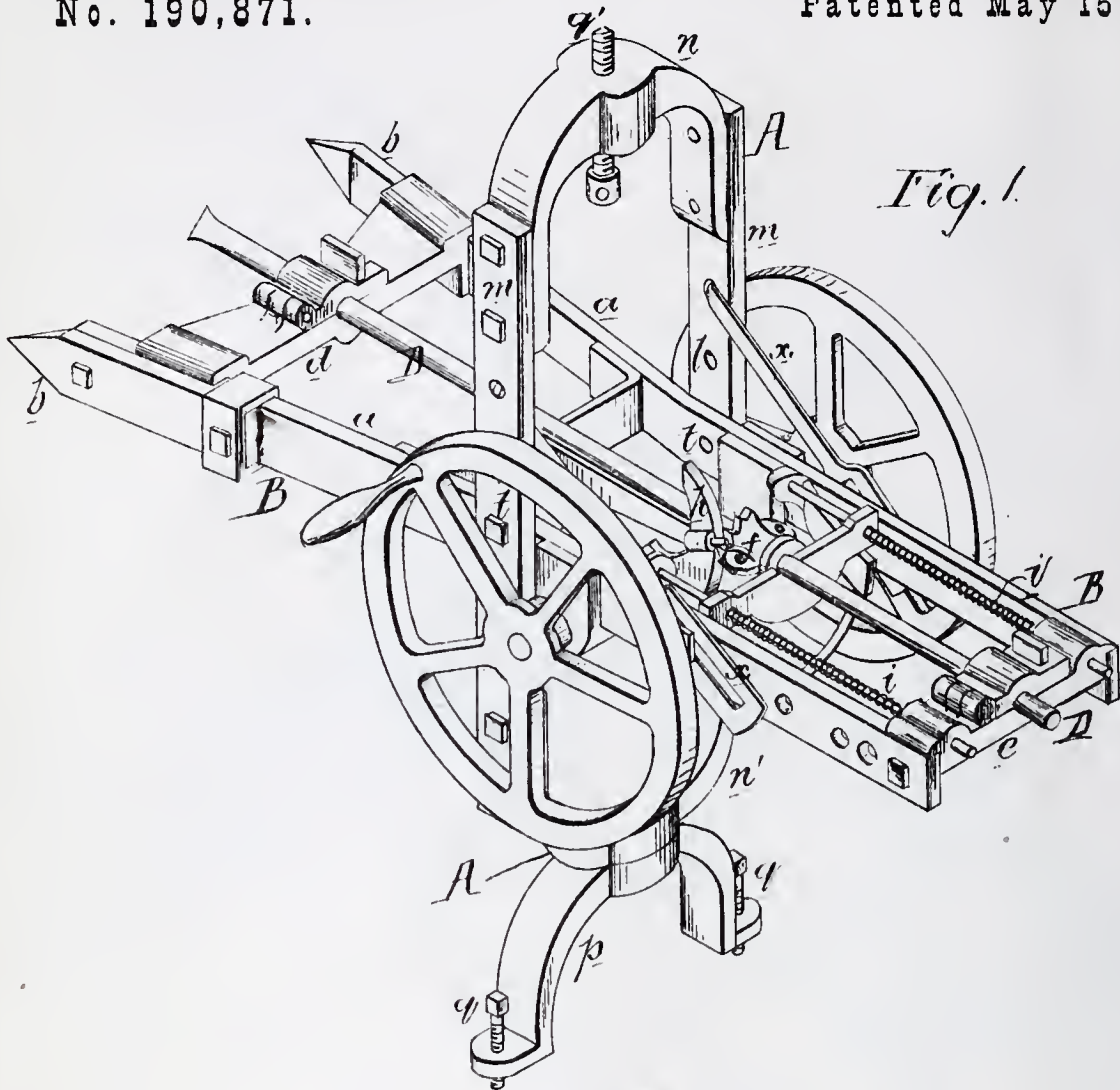
Patented June 5, 1877.



O. B. KEELEY & J. FLEMING.
ROCK-DRILLING MACHINE.

No. 190,871.

Patented May 15, 1877.

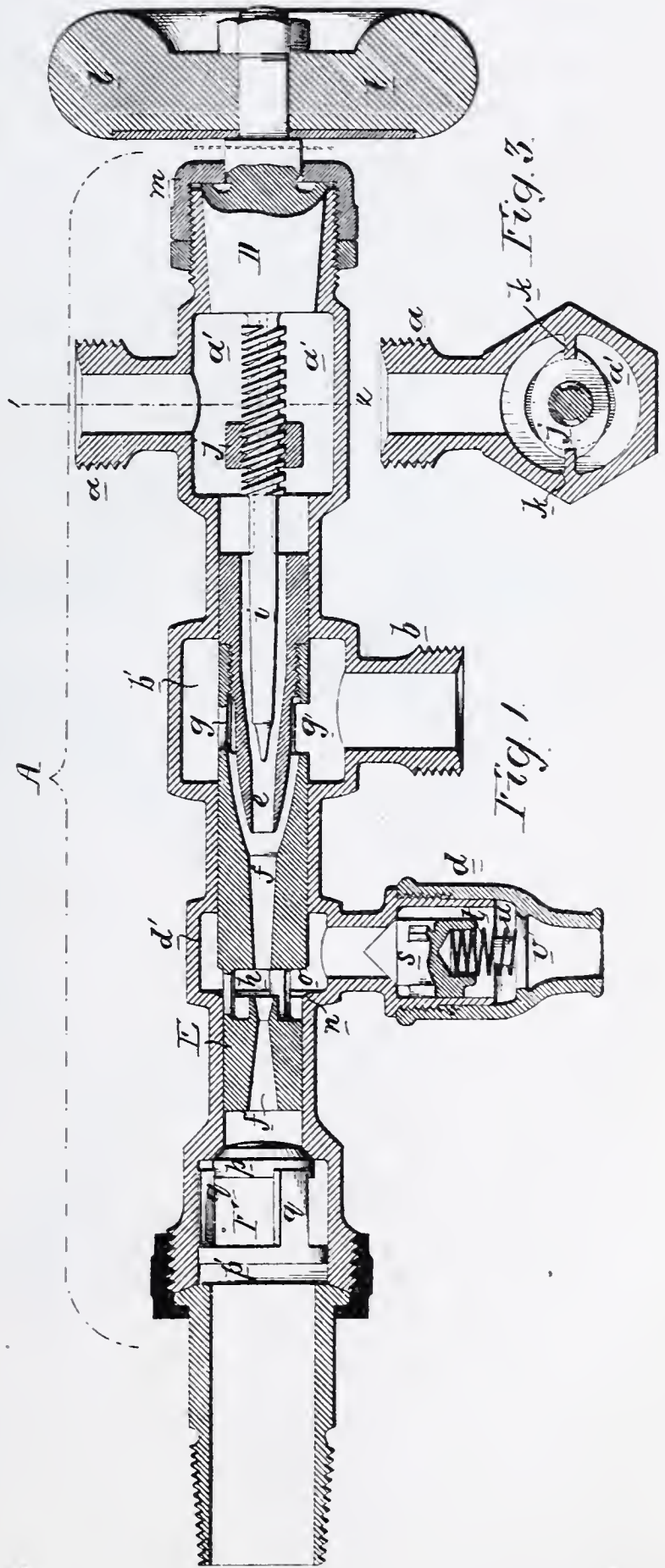
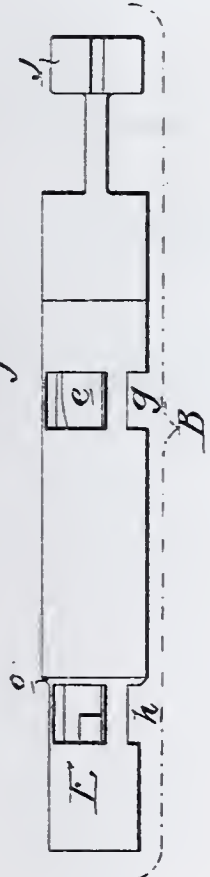


J. FERGUS.
INJECTORS.

No. 174,509.

Patented March 7, 1876.

Fig 2

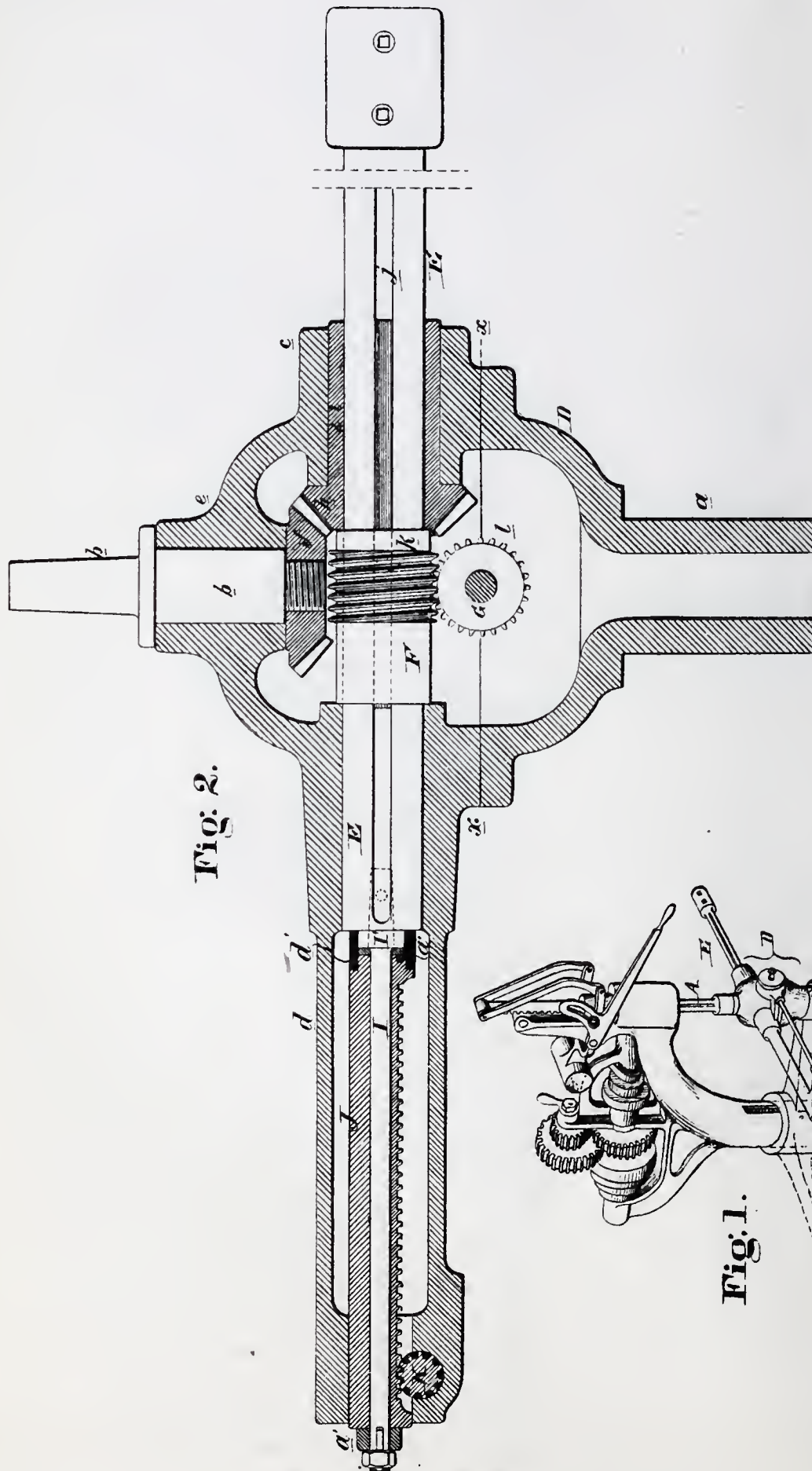


A. VAN HAAGEN & C. VAN HAAGEN.

Improvement in Drilling-Machines.

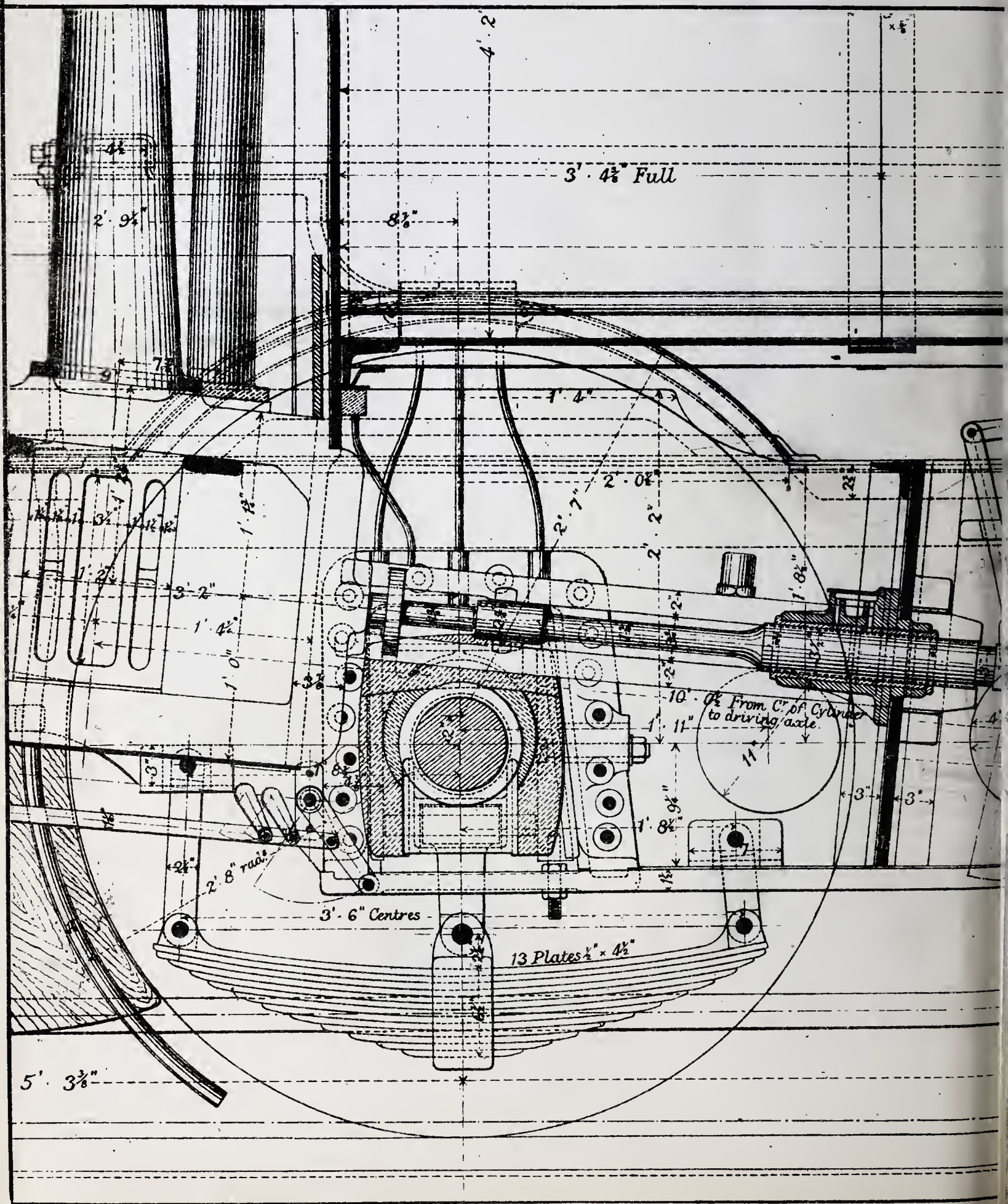
No. 126,111.

Patented April 23, 1872.





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